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THE AMERICAN JOURNAL OF PSYCHIATRY

PRESIDENTIAL ADDRESS¹

WINFRED OVERHOLSER, M. D., Sc. D., WASHINGTON, D. C.

One hundred and four years ago, in the city of Philadelphia, a group of thirteen superintendents of mental hospitals met to organize what is now The American Psychiatric Association. There was at that time no such specialty as psychiatry. Those patients who were recognized as suffering from mental disorder were cared for in mental institutions, nearly all of which were then, as now, operated by the states. Psychiatric practice as it then existed was confined to the hospitals, with occasional ventures into the courts. The founders were all mature men who, incidentally, had had considerable experience in general practice; their backgrounds were similar; they were personal friends; they were united unselfishly and without thought of personal aggrandizement in a common interest in the improvement of the institutional care of the mentally ill. Through the century and more which have passed psychiatry has undergone changes for which the word revolutionary is mild. The number of patients in hospitals has increased astronomically. Extramural clinic psychiatry has developed to an amazing degree, and with it the private practice of psychiatry in the community. Psychiatry is now generally recognized as an integral part of medicine, and as bearing on all aspects of medical practice, including preventive medicine. It has come as well to have application to nearly every aspect of social life, the schools, the courts, industry, religion, and the military. The understanding of mental mechanisms, thanks largely to the work of Freud, has been in great measure responsible for the successes of psychiatry; the gains in treatment could hardly have been envisaged by a worker in the field even 25 years ago. The public attitude has developed from one of scorn or apathy to one of interest and of reasonably sympathetic understanding. Many of the states are keenly aware of the needs

of the patients themselves and of the training of personnel and of research, while more recently the Federal Government has provided an important impetus to progress in these lines by the passage of the Mental Health Act, the culmination of over 15 years of effective work by the Mental Hygiene Division of the United States Public Health Service.

All these changes have resulted in a vast increase in the number of practitioners of the psychiatric specialty. Our Association has grown from a small club of 13 to a large professional organization, now numbering nearly 5,000 members. There are 24 standing committees and 5 sections, together with 17 affiliated societies. This tremendous growth, greatly stimulated by World War II, has raised serious question as to whether the organization has now outgrown its original structure. The activities of the several committees are almost too varied to permit any officer or group of officers to maintain contact with them, particularly when those officers are unpaid and have other pressing duties. The needs of representation of the Association before committees of Congress and before State Legislatures, contact between the Association and the affiliated societies, and liaison with the various standing committees have impressed the Council with the desirability of having a full-time medical director who can devote his entire energies to the task of coordination and stimulation. The appointment of Dr. Daniel Blain in this capacity has already been announced to the membership, and during the proceedings of the present meeting the members will hear at first hand from Dr. Blain his suggestions and plans for future development.

It is likely that 5,000 is altogether too large a number to warrant a continuation of the "town meeting" style of government. That is essentially the method which has been employed in the past in the election of officers, since only those members and fellows

¹ Delivered at the 104th annual meeting of The American Psychiatric Association, Washington, D. C., May 17-20, 1948.

may vote who are present in person at the meeting. It is obvious that only a relatively small proportion of the membership has an opportunity to participate in the selection of officers, except so far as they may indicate their preferences to the Nominating Committee. Less than 300 votes were cast in the election of two years ago and only about 700 a year ago. Such a method can hardly be said to be democratic; indeed, no large organization can be well operated on a strictly democratic plan.

The Reorganization Committee has considered this whole problem at length, and tomorrow will present to you a carefully studied plan to make the Association a representative rather than a strictly democratic organization, providing for the choice of officers by a House of Delegates, made up of representatives of the entire membership, elected by the various local constituent societies, and for administration by a Board of Trustees.

Many men—officers, councillors, committee chairmen and members—have given generously of their time in the past, and deserve great credit. We have come a long way in 104 years, but our predecessors have never lost sight of the fundamental issues. Turned aside by the rise of humanitarianism, while the community found temporary satisfaction for its sense of obligation in the building of public institutions, the Association has constantly looked forward to the solution of its basic issues—study, the setting and effectuation of standards, advance of its chosen field of medicine.

There must have been a continuance of pride in accomplishment and work well done by members of the Association during its 104 years of existence. If this were not so the torch would long ago have been extinguished or passed to other hands. We should view with gratitude the work and persistence of our forebears who step by step, and in the face of apathy and opposition from the public, from officials, and sometimes from other physicians, have made possible the present status of American psychiatry.

The assumption has sometimes been expressed that because the Association is large and has so far depended upon volunteer services little has been accomplished by it.

A study of the history of the Association and a reasonable familiarity with its actual operation readily demonstrate the falsity of this assumption. Perhaps no organization is ever satisfied with what it has accomplished; self-satisfaction is almost equivalent to death! It is quite possible that if the Association had had a larger membership with full-time officials and with large funds at its disposal it might have accomplished more, but to allege that nothing has been accomplished is to utter a libel upon the activities of many devoted servants of the cause of psychiatry and the welfare of the mentally ill. If a few of the outstanding recent accomplishments of various committees are here singled out for mention it must be with the warning that the list is not a comprehensive one and that omission of any mention is not intended as a slight.

One of the achievements of the Association as a whole, upon which it may look with genuine pride and satisfaction, is its rôle in the establishment of the American Board of Psychiatry and Neurology, an organization recommended by President James V. May in 1933. This certifying board, although one of the relatively newer ones, has accomplished much, and up to the present time has certified nearly 3,000 specialists in psychiatry or neurology, or both. As its aims become better understood by the general medical profession, the courts and the public, the pseudo-psychiatrist, whose sum total of psychiatric therapy is contained in his electro-shock box or in his kit of surgical instruments, will find himself increasingly lonesome.

Through the years the Committee on Standards and Policies has rendered valuable service in declaring the standards which should be demanded for the care of patients in mental hospitals. The existence of such standards has been of value in presenting to local legislatures the needs of the institutions of the respective states. More recently, by vote of the Council, a Central Inspection Board has been set up, which, under the guidance of the Committee on Standards and Policies will, when the necessary funds become available, undertake the rating of the various mental hospitals in the United States and Canada. The valuable work which has been done by the American Medical Asso-

ciation in rating medical schools and general hospitals is familiar to all. It is fully expected that a similar service may be rendered to the cause of mental hospitals by the functions of this Committee of the Association.

In the field of psychiatric nursing the committee dealing with that activity, with the aid of the Rockefeller Foundation, has rendered a valuable service in inspecting the various nursing facilities of the public mental institutions of the United States, in giving advice, and in aiding hospitals to secure trained personnel as a means of providing better nursing care for their patients. The work of that Committee has been outstanding.

The Committee on Psychiatry in Medical Education, also with the assistance of the Rockefeller Foundation, has arranged various postgraduate teaching seminars and by personal visits and correspondence has done much to improve the teaching of psychiatry in the various medical schools.

The Committee on Public Education has rendered yeoman service in making available to the public, particularly at the times of the annual meeting, suitable information concerning material presented by the various speakers. It has also done much during the periods between meetings to make available to the various press associations sound and informative material of interest to the public on psychiatric topics. It may be added parenthetically that some of its silences as well have been golden!

The accomplishment of the Committee on the History of Psychiatry in producing the very significant centennial volume hardly requires mention. Its publication, "One Hundred Years of American Psychiatry," sets forth definitively the progress of psychiatry during the century which had elapsed since the founding of this Association; if the Committee had accomplished nothing else, this volume would have justified its existence. Fortunately it is a standing committee, and will continue to record those data of today's progress which will be tomorrow's history.

The new Committee on the Relations of Psychiatry and Clinical Psychology has already made substantial contributions toward delimiting the respective fields of the two specialties and bringing about a closer union between them.

The Committee on International Relations, set up as the result of the recommendation of President Stevenson in 1941, was a precursor of the line of psychiatric thought which has resulted in the calling of an International Congress on Mental Health, to be held in London this coming summer. The importance of psychiatry in dealing with the tensions between peoples is at last being generally recognized.

The importance of the Committee on Veterans is already well established. Only recently, for example, before a successor to Dr. Daniel Blain was appointed as the Chief of the Division of Neuropsychiatry in the Veterans Administration the Medical Director of that important Government organization requested the advice of this Committee on Veterans before making his selection. This instance illustrates the service which an organization such as ours may render to public agencies.

Mention of the recent accomplishments of the Association should not fail to list the establishment of the Psychiatric Foundation. This Foundation, although independent of the Association, was originally sponsored by it, and its support in the education of the public, in the promotion of standards, and in the development of psychiatric research is urgently recommended to the membership of the Association.

Mention has already been made of the vast increase in public interest in matters relating to psychiatry. There has been an outpouring of books, with scenes purportedly laid in mental hospitals, some of which have depicted in lurid terms the alleged horrors of such institutions. Several motion pictures, wholly misrepresentative of psychiatric facts, have appeared and have achieved more or less notoriety. There has been a large amount of sensational material in journals of varying degrees of responsibility. Indeed, almost any book or article with a title containing the word "psychiatry" or "psychiatric" can today be assured of a large sale, and unfounded claims for new procedures and operations receive wide and misleading attention. Since there is such deep interest in matters psychiatric it behooves the profession that the public shall be given material which is sound, truthful and progressive, but

not sensational or alarmist. The newspapers appear to expect an opinion on any topic from any psychiatrist at a moment's notice, and any statements made by him are likely to receive extensive publicity and not seldom to be seriously distorted. The Committee on Ethics, a committee which works quietly but efficiently, has during the past year or two considered a number of instances in which psychiatrists appeared to have overstepped the bounds of propriety in articles by and about them in the popular press. The Committee has felt seriously its responsibility to the community and the responsibility which should be felt by all members of the profession. It has, however, found itself seriously hampered by the fact that no code of psychiatric ethics exists. The principles of the Code of Ethics of the American Medical Association, excellent as far as they go, do not cover a number of the points of interest to psychiatrists.

From the founding of the Association until 1875, it was the practice from time to time to formulate, in what were then called "Propositions," its official views on certain matters relating particularly to the care of the mentally ill. Nothing of the sort has been attempted since that time. Accepted policies and views have been made known and effective through the work of its individual members, sometimes acting through committees and occasionally with the sanction of a vote of the Association, but there has been no general authoritative statement. It may well be that the time has arrived when consideration should be given a well-planned statement of the underlying principles of psychiatric practice, administration, and conduct. No canon or code of ethics should, of course, attempt to hamper the individual beliefs of the member and his freedom to engage in new therapeutic ventures, at least when such ventures are not clearly harmful to the patient; nor should a code attempt to limit the range of scientific investigation, speculation, and imagination. It should be remembered too that the physician is not infrequently not only a medical man but a public official, and that as such he may find it possible in his latter capacity to maintain that degree of reticence which the

physician is generally expected to maintain in his dealings with the public.

It was some such thinking which led the Council a year ago to direct the President to appoint a committee to draw up a set of psychiatric principles and standards of practice. The Committee, made up of mature members of this Association, with broad backgrounds and with varying points of view, was established under the chairmanship of Dr. Walter L. Treadway. Unfortunately, however, that individualism which has been the pride and joy of the psychiatrist throughout the years manifested itself in the deliberations of the Committee. As a result no detailed report is yet available, although the very thoughtful preliminary report deserves the study of our members. With all due allowance for the varying points of view of the members of the Association and their different interests in the phases of psychiatry, there certainly are many things upon which all agree as desirable, as being for the best interests of the patient, for the best interests of the public, and therefore in the last analysis for the best interests of the psychiatrist himself. I recommend to the Association serious consideration of the formulation of a code of psychiatric principles and practice which will thus express the elements of sound ethical and scientific conduct on the part of psychiatrists and the desirable administration of institutions and systems of institutions, as well as the relations of psychiatry to the other disciplines and to the various phases of community and international life. Within the confines of a single hour one can do little more than give the headings of the topics which might well be considered in such a code or statement, or proposition, or whatever title might be applied to this collection of desiderata.

1. First of all in importance are the relations of the members to their patients, the patient's family, to themselves and to their colleagues, to the community, to the general public and to the courts. There is presumably substantial agreement that the patients' confidences are sacred, that the physician should not take an unfair advantage of his patient by using adversely any information which has come to him in his professional capacity; that he should, for example, not appear as

a witness against a former patient. Certainly this patient-physician relationship is elementary. In his relations with his colleagues the psychiatrist should comport himself as an honorable man and physician. He should have respect for the opinions of his colleagues, and should not engage in public vilification or criticism, except so far as in professional circles he is, of course, entitled to disagree with the professional opinions expressed by his fellow psychiatrists. The public is entitled to look to him to make available sound and unsensational statements upon psychiatric matters, not presented in such a way as to savor of seeking publicity. Especially he should avoid making extravagant or unfounded claims regarding the results of new procedures in therapy. In other words, the psychiatrist should present the facts as a teacher and not subject himself to the accusation of being an "advertiser." In legal proceedings he should be jealous of the prerogatives of the profession and appear always as an adviser rather than as an advocate, telling the truth as he sees it to the best of his ability, unmoved by the prospect of gain or fame. He should, in the legal field particularly, avoid so far as possible any controversies with his colleagues and seek opportunity for joint examination and report in contested cases. His dealings with the members of auxiliary and associated professions such as nursing, social work, clinical psychology, occupational therapy, and the clergy should be on the same high ethical and professional plane as those exhibited in relations with other physicians.

2. Next in order and possibly next in importance to preserving a high ethical standard of professional relations and the avoidance of self-seeking publicity should be consideration of the attitude of the membership with relation to the interests of the mentally ill, safeguarding them and their rights, the early recognition of mental disorder, and making available early and adequate treatment for such patients. It should continue to be the aim of the Association, as it historically always has been, to see to it that adequate facilities are provided, that patients in them are humanely treated and given the best of professional care, that the laws relating to the admission of patients

to hospitals are made as informal and simple as is consistent with the basic constitutional rights of the patient, that adequate personnel are provided—adequate both in numbers and in training—and that the institutions are not only properly financed but kept free from partisan political interference. The Committee on Standards and Policies has consistently enunciated these principles—indeed, they have been tenets of the Association from its inception. The Association must protest vigorously, for example, any arrangement which permits a nonmedical board to declare erroneous the professional findings of the medical department of one of the armed forces, even to the extent of nullifying and expunging an entire medical record! Such bureaucratic stultification of psychiatry should be unimaginable, but unfortunately examples have occurred even recently.

3. Next should come an expression of the attitude of the Association toward the matter of research into the causation, prevention, and treatment of mental disorder. The amounts hitherto expended on research have been shockingly small, and much of the research has been hit-or-miss in nature. A serious attempt should be made, not to regiment, but to encourage cooperative coordinated basic research. The effort of the Mental Health Council along this line in administering the National Mental Health Act should be emulated. An earlier plan of similar nature was begun by the Supreme Council of the Scottish Rite of Freemasonry for the Northern Masonic Jurisdiction in 1935 under the leadership of an honorary member of this Association, the Honorable Melvin M. Johnson; it has brought gratifying results. It is pleasant in this connection to announce the acceptance by the Association of a gift of \$25,000 which will permit the annual award of the Hofheimer Prize to younger men in the field of psychiatric research. Not only should research be encouraged by the Association, but the results of research should be made accessible to the general medical profession and so far as appears desirable to the general public. The work of the science writers of the press services and newspapers like the *New York Times* have been invaluable in making available and widespread such knowledge as has already been gained.

4. The Association might well express its interest in the financial aspects of psychiatric service by seeing to it that the public obtains the most for its money, in other words that the cost of public care is kept as low as is consistent with the needs of the patients. Adequate appropriations must always be insisted upon, but the public must be assured that there is no waste or unnecessary duplication. The operation of child guidance clinics and the early care and education of the mentally defective, for example, can well be shown to be an ultimate saving to the taxpayer. The same is true of the mentally ill with criminal tendencies, of defective delinquents, and of the various behavior problems of children and of adults. The family care of mental patients appears to offer a source of economy to the public. These are but examples of aspects of the problem which have a very lively interest to the public as taxpayers and, therefore, to the psychiatrist as a member of the public.

5. The Association should lay down guiding principles for ameliorating in the community the sources of mental invalidism, and enunciate acceptable principles for the promotion of the positive aspects of mental health. There are various sources of internal stresses within the community which the practical application of mental hygiene principles can do much to alleviate. The Association, too, might well take a stand on problems of human sterilization and of contraception. Certainly the relations of psychiatry with sociology, with education, with theology and jurisprudence, and the possibilities of leisure time and of recreation should be fully developed. As a necessary corollary, the Association should foster steps toward the training of personnel who are to undertake work in the various fields; this is indeed one of our most pressing problems. An interest has already been shown by the Association in the matter of international relations; certainly no time is more urgent than the present for the amelioration of the factors which lead to tensions between peoples.

6. Finally, the Association should take a firm stand, as it has in large measure already, on the matter of standard administrative policies affecting the public and private care and treatment of the mentally ill, both in in-

stitutions and in the community. The nature, the aims, the powers, the duties, and the scope of a minimum organization, not only of the hospital itself but of the supervisory body within the state, should be clearly defined. The Association has already laid down the principle that the superintendent of a mental hospital should be a well-trained psychiatrist, preferably a diplomate of the American Board of Psychiatry and Neurology, who is appointed on merit and who is free of political interference, who has in turn within his power the appointment and discharge of the employees of the institution. The Association has never taken an official stand upon the matter of state supervisory organizations except that five years ago it protested vigorously the proposal (which unfortunately became law) in our most populous state that the head of the supervisory department of the state hospitals need have no professional qualifications whatever. Certainly the desirability of professional supervision of the mental hospitals, public and private, in those states which have more than two or three such institutions should not, in these times of advancing medical standards, be open to question. Nevertheless, in all too many jurisdictions the mental hospitals are still supervised, if at all, as essentially "charitable" or "public welfare" facilities, instead of the hospitals which they actually are and should be. In addition to specifying the qualifications and the tenure of office, the Association might well indicate in general terms the personnel practices and desirable training of the various classes of the hospital and of the state supervisory system.

A set of standards, a clear-cut statement of this sort, would be of infinite value to governors and to legislators, to private organizations, such as state and local mental hygiene societies, and citizens generally who are interested in improving the mental health administration of their respective states. If such a statement could be devised and promulgated, it would be valuable in making effective the proper results of the ratings which it is proposed to set up under the aegis of the Association and with the aid of the Psychiatric Foundation. Indeed, without such a formulation it is doubtful whether the ratings in themselves will be fully effec-

tive. Unless a positive program can be laid down, the results of the rating of a given hospital as inadequate may well impair the public confidence, stampede the legislature, and do infinite damage to the morale, not only of the patients but of their families. On the other hand, a statement of this sort in addition to the rating should do much to bring about an effective raising of the standards of mental care and of the entire profession of psychiatry.

Such a program is entirely feasible. It is not only feasible but urgent. In its implementation one thing which is needed and of which we have heard much is personnel. A large number of men are now undergoing training as psychiatrists and at the moment the urge is to go into private practice. It may not be improper if one who has devoted his life to the public service points out that important as is private practice and growing as is that field, it is nevertheless true that over a half million people are cared for in the mental hospitals of the United States. Those hospitals are likely, in spite of the advances in treatment, to continue to function and grow for a long time to come partly because of the growing numbers of the aged. There is every reason to think that the future of the mental hospitals as centers of treatment, of training, and of research is to be brighter than has been the case for some little time, now that the public is awakened to the needs; certainly the patients in them deserve the best, and the living conditions, salaries, and opportunities for professional growth must be made such as to attract and hold well-trained psychiatrists. There is need at the same time for men trained not only in clinical psychiatry but in the elements of hospital administration, in order that the progressive operation of our hospitals and of the mental hygiene and clinic systems of the various states may be furthered.

We meet at a time when world affairs are highly disorganized, when we find a condition of tension, uncertainty, and confusion among our people and even some talk of the possibility of a further armed conflict. No one wishes war, and we all hope fervently that the various steps which are being taken to alleviate world tensions may be successful. If, however, this country should be drawn

into a conflict and, indeed, if, as now seems likely, there is a marked expansion of the armed forces, this Association must certainly see to it that the lessons learned so painfully in the last war are not forgotten. It is perhaps unlikely that they will. The events of 1941 to 1945 are too recent for anyone to have forgotten much of what went on during that period. In the lapse of time between the two World Wars, however, much was forgotten of what had been learned of the practical applications of psychiatry to military problems; by 1940 the unfamiliarity of many high military officials with the contents of Volume X of the "History of the Medical Department of the United States Army in the World War" was startling indeed. For example, although division psychiatrists had amply proved their value in 1917 and 1918, it was not until the summer of 1943 that they were again provided in the Tables of Organization! This is but an example of the shortness of some memories.

The memories of many of the members of the American Psychiatric Association, however, were still vivid as the war clouds began to gather in 1939. In that year a Committee on Military Mobilization was appointed by President Sandy to confer with the Services as to the needs and as to available personnel. The Chairman, Dr. Harry A. Steckel, promptly communicated with the Surgeons General of the Army, Navy, and Public Health Service. The assistance of the Association in ascertaining what psychiatrists were available and in setting up training centers was offered and was gladly accepted by the Navy. The Army, however, indicated that no such tabulation of personnel was necessary and that no training centers were called for. There were not only letters but personal conferences; but uniformly at this period, at least, the suggestions and recommendations of the Association were disregarded. Despite rebuffs, the Committee proceeded to make plans, to secure information, and to adopt every available means to keep before the authorities the fact that the Association had knowledge of value and an active desire to be of assistance. It was reinforced in its work by the establishment by the National Research Council in the Fall of 1940 of an Advisory Committee on Neuropsych-

chiatry. At the same time, Dr. Harry Stack Sullivan was doing all in his power to bring psychiatric concepts into the Selective Service System, but here, too, resistance was met. At the meeting in 1941 at Richmond the Military Mobilization Committee provided a full day's program on military psychiatry, which stirred up much interest among the members and representatives of the Services. The status of psychiatry in the armed forces did not improve during the ensuing year, however. At the meeting of 1942 in Boston a resolution adopted by the Association read in part: "It is most alarming to note that the Naval and Army forces are not utilizing the psychiatric facilities of this nation to the fullest extent. These facilities, both for actual military purposes and for civilian or military morale, are being shockingly unappreciated in spite of the lessons learned from the last World War. . . . We are already far behind production in other fields in the matter of organization for both the medical necessities and the social organization of the morale of the nation. Therefore your Committee on Resolutions recommends the appointment of a well chosen committee with power to act in making forceful representation of this status of affairs." It was not until after this action that a civilian, Dr. Roy D. Halloran, was appointed as Chief of the Neuropsychiatric Branch (the dignity of a Division was only to come much later). Since this Committee was given power to act, the functions of the Military Mobilization Committee were relegated to the background, and from that time on the Special Committee constituted the sole link between the Association and the Army. As a matter of fact the members of this Committee were subsequently appointed as Consultants to the Surgeon General, so that where their identity as representatives of the Association left off and that of civilian consultants to the Army began was not always entirely clear. Presumably their views as expressed to the Army reflected those of the Association's membership; certainly to allege that the Association was mute is to libel the outstanding men who constituted this Committee. Despite numerous obstacles during his service as Chief of the Branch of Neuropsychiatry in the Surgeon General's Office, Dr. Hal-

loran made many gains for Army psychiatry. Following his untimely death in November of 1943 Dr. William C. Menninger was appointed, and the progress which was brought about, though not without effort, under his administration is familiar to us all. It should be remembered, however, that it was not until after the end of hostilities that psychiatry was fully recognized, by Dr. Menninger's promotion to Brigadier General, as being of full stature with medicine and surgery.

This sketch of some of the difficulties experienced by the Association in making effective the lessons of World War I and in making psychiatry a valuable instrument in the administration of the Medical Department of the Army is set down here in justice to the many unsung members of the Association who worked diligently in the face of continued discouragements to promote the cause of military psychiatry. Such statements as have already been published concerning the history of psychiatry in World War II have failed to take into consideration some of the facts here enumerated; since the National Research Council's project for a military medical history has had to be abandoned, it seems desirable to complete the record here, at least to the extent permitted by publishable material. It is unlikely that ever again, with psychiatry's having reached its present level of general appreciation, will such backwardness be found in making full use of psychiatry in the armed forces.

Mention has already been made of the Congress on Mental Health to be held in London this coming August. The American Psychiatric Association has participated enthusiastically in promoting the organization of this Congress, and it is hoped that a large number of members will attend this meeting, take part in it and give it their financial support. Many preparatory commissions are working. These commissions are interdisciplinary; that is, they combine the knowledge and skill not only of psychiatrists but of clinical psychologists, social workers, nurses, anthropologists and sociologists, and, indeed, members of any profession which is concerned with human behavior. With international tensions mount-

ing there is an urgent need for the application of mental hygiene principles and for the concentration of the wisdom of all toward the practical application of psychiatry to the problems of world citizenship.

Psychiatry has been greatly honored in having one of its outstanding representatives selected as the executive secretary of the Interim Commission of the World Health Organization. General G. Brock Chisholm has made comprehensible to the world as very few ever have the possible contributions of psychiatry to international comity. Let us hope that in the very near future the United States will follow the example of the other nations of the world in becoming an active member of the World Health Organization; certainly America cannot afford to lag in international ventures for the promotion of the public health. The officers of the Association have already expressed themselves on this matter to the Congress of the United States; I hope, however, that a strong resolution on this score may be adopted at this meeting.

The progress in psychiatry in its practical applications to the sick, in its preventive aspects, research, teaching, administration, and in mental hygiene would have been unbelievable as recently as 25 years ago. Nevertheless, with all the progress that has been made, psychiatry is but on the threshold of further vast and important contributions to human welfare. In promoting those contributions the American Psychiatric Association can render an invaluable service. This is no time for factional disputes, for self-seeking, for jealousies, for devotion to particularist tenets.

The challenge was never more arresting. There are great possibilities for psychiatric advance, but there are likewise resistances, fears, and readiness in some quarters to exploit our differences and disagreements, forces which may prove disruptive and which may retard psychiatric progress. There never has been a time when it was more important for us all to stand together, respecting the differences of view among us, and exhibiting among ourselves that tolerance which we advise for our patients.

WINFRED OVERHOLSER, M. D., Sc. D.

PRESIDENT 1947-1948

A BIOGRAPHICAL SKETCH

MERRILL MOORE, M. D., BOSTON, MASS.

The first Overholsters came to America about 1728. They had migrated originally from Switzerland. Their purpose was to find a community in which they could live and have freedom of religious belief. Not being Calvinists, they were driven out of Switzerland through the Palatinate on their path toward a new country. Some members of the family remained, among them the ancestors of Emil Oberholzer, the Swiss psychiatrist and collaborator with Herman Rorschach, now practicing in New York. Thanks to help from some relatives of William Penn, the emigrating members settled in Lancaster County, Pennsylvania, where members of the family are still to be found.

Edwin M. Overholser moved to Massachusetts about 1880 from Pennsylvania. In the flourishing industrial center of Worcester, he went into the surgical dressing business. The first of his three children, Winfred Overholser, was born in Worcester April 21, 1892.

Winfred Overholser went through the public schools at Wellesley and entered Harvard in 1909, graduating *cum laude* in economics with the class of 1912. The following summer he had an opportunity to assist Dr. E. H. Wiswall at the Wiswall Sanitarium in Wellesley, and in the following autumn he entered Boston University School of Medicine.

From the first he was headed toward psychiatry; that was, in fact, the chief reason he attended medical school. During his medical course he lived in what is now the Massachusetts Memorial Hospital, where he enjoyed association with many outstanding physicians. The man who influenced him most at this period was Dr. Frank C. Richardson, one of the most prominent neurologists and alienists in the city, and who as the head of the Evans Memorial Hospital was able to give young Overholser many extra opportunities not afforded the other

students to see neurological and psychiatric cases. Dr. N. Emmons Paine (who is now the oldest living member of the American Psychiatric Association) was also one of his instructors. At that time (about 1914) it was a routine procedure at Boston University for each student to spend six weeks in the Westboro State Hospital while studying clinical psychiatry, a practice emulated many years later by some other medical schools. Dr. Overholser received the degree of M.B. in 1915 and M.D. in 1916. When he graduated he was invited to remain an extra year with Dr. Frank Richardson as his resident. This he did, continuing at the same time to read psychiatric literature and to attend numerous clinical demonstrations at a period when neurology and psychiatry in Boston were developing rapidly. Compared with previous periods, it was the "Age of Pericles." Morton Prince was lecturing and active in practice. Active treatment of neurosyphilis was just beginning in the state. The diagnosis and treatment of psychotic disorders were being debated and developed under the stimulus of men such as E. E. Southard; indeed, Boston in that day offered many stimulating opportunities for a young man planning a career in psychiatry.

Several important persons came into association with young Overholser at this time who were to influence his later career. The first of these was Dr. George M. Kline, later president of the Association, who had just been appointed Commissioner of Mental Diseases, and Dr. L. Vernon Briggs, a forceful figure in psychiatric progress.

After the year's residency at Evans Memorial Hospital, Dr. Overholser joined the staff of the Westboro State Hospital. At this point the "war to end war" interrupted his first year in clinical psychiatry. In February, 1918, he entered the Army of the United States and was commissioned a first lieutenant. He was ordered to the Neurological

Institute in New York City, where he took further training in a military program under the supervision of Dr. Walter Timme. He was next transferred to Camp Upton and was then sent overseas with an evacuation hospital established at Vaubécourt, France. After a short tour of duty in this hospital he was transferred to Base Hospital #117 at Prez sous La Fauche, which was the main center for the treatment of psychoneurotic soldiers.

The work here was stimulating. Dr. Frederick W. Parsons was commanding, and to assist him were Dr. Sidney I. Schwab and Dr. Douglas A. Thom. Not far away were Dr. Harry Solomon, Dr. Thomas Salmon, Dr. Donald MacPherson, and others who occasionally visited their psychiatric neighbors and colleagues.

Overholser served altogether about six months in France. A note from his diary at this period reads: "We are trying to treat psychoneurotics according to the Order of the Day. We have managed to set up a primitive sort of psychotherapy. We are using suggestion and hypnosis when it is possible. Time is on our side and some of the patients get well in spite of us." He returned to the United States after the Armistice, and was for a while assigned to an army general hospital in East Norfolk, Massachusetts (now the Pondville State Hospital), where psychotic veterans were being treated.

He and Dorothy Stebbins of Worcester were married June 4, 1919, just before he got out of the Army. The young couple then returned to Westboro, where Overholser resumed his staff position. After one year at Westboro State Hospital he was transferred to the Gardner State Colony as assistant superintendent. In 1921 he moved to the Medfield State Hospital, where he assisted the superintendent, Dr. E. H. Cohoon, one of the ablest administrators then in the state service. Here he interested himself particularly in the problem of improving the care of the patients, and in this successful endeavor gained recognition and support from his superiors. While in Medfield he was Commander of the local American Legion Post, and devoted additional time to other community activities. At Westboro Dr. Overholser organized the first state hospital

orchestra in Massachusetts. He maintained this interest in other hospitals where he served; he played in the hospital band at Gardner and in the hospital orchestra at Medfield.

Dr. Overholser's outstandingly successful work in the improvement of state hospitals in Massachusetts resulted in his being appointed assistant to the Commissioner of Mental Diseases, Dr. George M. Kline, in October, 1924. This was actually a training job. Dr. Kline had evolved the policy of having all prospective superintendents serve for a time in the central office at the State House in Boston. In this capacity Dr. Overholser obtained an over-all view of the state hospital system in Massachusetts. Many innovations were being brought into the state service at this time. Dr. L. Vernon Briggs was putting a great deal of emphasis on the importance of mental illness in relation to crime, and had recently secured the passage of the famous "Briggs Law." It followed naturally that Dr. Overholser was appointed director of the division for the examination of prisoners. This was a new division primarily aimed at bringing the advantage of psychiatric examination to mentally ill prisoners in the county jails. It was at this time that he began his writing career in the field of forensic psychiatry.

In 1930 he was appointed assistant commissioner of mental diseases for the Commonwealth of Massachusetts. In 1933, Dr. James V. May, then president of the American Psychiatric Association, was appointed to succeed Dr. Kline on the latter's death. It was Dr. May's personal desire to return to the Boston State Hospital, which had always been his "pet project." This he did in June, 1934, and Dr. Overholser was then appointed Commissioner of Mental Diseases by Governor Joseph B. Ely.

This was the first time in the history of Massachusetts that a fully trained and qualified Bay Stater had been appointed to this post. In view of Dr. Overholser's wide experience and general recognition of his ability to fill this position, there was an unusual public reaction. A campaign was carried on by the newspapers of the state, Democratic and Republican, sectarian and foreign language alike, to urge the Governor to reap-

point him at the expiration of his first term. James Michael Curley was at that time the incumbent of the gubernatorial chair and strongly supported a straight party and political line with heavy emphasis on the spoils system. In November, 1936, he made a political nomination, designating an individual who was wholly incompetent by training or temperament to fill such an important state position. Curley finally secured the Council's confirmation of his candidate's appointment. This appointee was later removed by Curley's successor after a chaotic year in office during which many hard-earned gains in the state hospital system were lost. Thus for the first time the axe of destructive political interference began to hack at the structure of the Department of Mental Diseases.

In Massachusetts, Winfred Overholser is remembered (aside from being Commissioner of Mental Diseases for two and one-half years) for his work in promoting the operation of the Briggs Law. He wrote and talked a great deal about it and apparently some of his statements still are of enough interest to be quoted.

After leaving the Massachusetts state service Dr. Overholser busied himself on national matters. He was designated to perform the special task of surveying research facilities in mental hospitals for the National Committee for Mental Hygiene. He completed this survey in May, 1937.

In the meantime, Dr. William Alanson White had died in Washington, leaving vacant the post of superintendent of Saint Elizabeths Hospital. Leaders in many fields of public and social service were quick to recognize this opportunity; particularly the Honorable Harold L. Ickes, Secretary of the Interior, became interested in Dr. Overholser because he especially desired to make a nonpolitical appointment to this post. He secured the services of a committee of prominent members of the American Psychiatric Association to advise him in the selection of a successor for Dr. White. Three names were mentioned, but Ickes interviewed only Overholser and shortly thereafter announced his appointment as superintendent of Saint Elizabeths Hospital.

Since Overholser came to Washington, he has been extremely busy, not only with the

operation of the hospital but also with a number of outside activities. The work of the hospital expanded tremendously with the beginning of the emergency and at the outbreak of the war. During the war period Saint Elizabeths cared outstandingly for over 5,000 naval officers and enlisted men as patients. In addition, about 125 naval medical officers and nearly 100 nurses were given instruction in psychiatry and approximately 800 hospital corpsmen received their training there. Only recently the Surgeon General has recognized these services by awarding a Certificate of Achievement to Saint Elizabeths Hospital and a Certificate of Appreciation to Dr. Overholser.

When Overholser arrived at Saint Elizabeths to assume charge he took immediate steps to strengthen the training school for nurses. This has succeeded past his expectations and the graduates of this school have consistently taken the highest grades in examinations set by the Nurse Examining Board of the District of Columbia.

With the expanding demands of the Bureau of the Budget and other governmental agencies Overholser has had to widen the organization of his hospital. This has required much planning and many important decisions on his part. In 1940 the hospital was transferred by the President's Reorganization Plan from the Department of the Interior to the Federal Security Agency, where it is a bureau as it was under the Interior Department. In all these changes Overholser has tried to maintain the high medical standards that Dr. White had set, and at the same time he has introduced many innovations. One of these, for example, is the use of psychodrama as an adjunct to psychotherapy. Saint Elizabeths was the first mental hospital in this country to use this technique. An important part of the staff since 1920 has been an active Red Cross unit, and during World War II a very large number of Red Cross workers were trained at Saint Elizabeths, particularly in recreation activities and as social workers for overseas duty. With the development of the Good Neighbor Program, Overholser organized training courses for physicians from South and Central America. Modern psychiatry was presented to them in an abbreviated form, but its effectiveness

has been indicated by the wide reception and expressions of gratification from government officials in South America whose candidates have been sent to Washington for graduate work and have thus been exposed to the American viewpoint in this field.

In spite of the long military tradition of Saint Elizabeths Hospital, the law was changed in 1946 to exclude the Army and the Navy from its benefits, much to the regret of both the hospital and the Navy. As a result, it is becoming more and more a civilian institution, although a considerable number of veterans still remain there under treatment.

One of Overholser's first extracurricular assignments was his appointment as a member of the Federal Board of Hospitalization, on which he continued to serve until the board was reorganized by the Bureau of the Budget in 1943. He served also as a member of the Medical Advisory Council of the Veterans Administration until that was abolished with the appointment of General Omar Bradley as administrator. He has since served on the advisory committee of the neuropsychiatric division of the Veterans Administration.

In 1938 Overholser was appointed professor of psychiatry at George Washington School of Medicine. This was not a new experience for him, as he had taught at Boston University from 1925 until he became commissioner in 1934, with the final rank of professor of psychiatry. Among other academic recognitions it should be mentioned that in 1940 Boston University conferred upon him the honorary degree of Doctor of Science.

In Washington Dr. Overholser found that steps had been taken toward the establishment of a Research Council on Problems of Alcohol, with the late Dean Earl B. McKinley of George Washington. He took an active part in the establishment of this organization and served as chairman of its scientific committee until increasing pressure of his other administrative work caused him to give this up soon after the outbreak of World War II.

In 1940, the National Research Council set up among its committees advisory to the Surgeon General a committee on neuropsychiatry. Overholser was made chairman and

served until the close of the war. This committee was helpful in making the services a little safer for the psychiatrist, although some of the advice was quite markedly unheeded. When the American Medical Association established the journal, *War Medicine*, Overholser was appointed on the editorial board and served until that journal was succeeded by *Occupational Medicine* in 1945. He has since served on the editorial board of the latter journal. In 1945 also he was appointed chairman of the advisory committee on occupational therapy of the Council on Physical Medicine of the American Medical Association.

In the autumn of 1940 a report that Overholser had written for the Federal Board of Hospitalization came to the attention of President Roosevelt, and this circumstance had much to do with the introduction of psychiatry into the induction process. Speaking of this important detail of his work Overholser has remarked cryptically to his friends, "For various reasons this introduction had some vicissitudes, but by the close of the war the system was almost working." He served as a member of the psychiatric advisory committee of Selective Service throughout the war and in 1946 was awarded the Selective Service medal.

Still another item on his agenda was his appointment in 1941 on the Advisory Council on Gerontology in the National Institute of Health under the Public Health Service. Work in geriatrics was started by the Public Health Service at that time, but it has remained in a state of suspense for a number of years. Dr. Overholser is much concerned over this and has been actively hopeful that it will be continued again sometime in the future.

In medical circles of the District of Columbia he has been active. For several years he has been the chairman of the subcommittee on mental health of the Medical Society of the District. He has also served as president of the Pan-American Medical Association of Washington and is at present the president of the Academy of Medicine of Washington. He is now beginning his third year as Editor-in-chief of the *Quarterly Review of Psychiatry and Neurology*, a venture which has proved successful. He is also a

lecturer on psychiatric jurisprudence in the Washington School of Psychiatry. He has served since 1935 on the scientific administration committee of the National Committee for Mental Hygiene; also on the committee on research in dementia præcox since its organization in 1936, this being the committee which passes on the disbursement of the Scottish Rite appropriations for research in dementia præcox.

Anyone in a position like Dr. Overholser's is called upon for various and innumerable odd jobs. The reputation of the institution he heads is national and international as well as local, since it is a Federal institution and a very large one. Many requests for public addresses and services funnel in to him. In 1944, for example, when a good deal of local criticism was directed against the psychiatric division of the Gallinger Municipal Hospital, the Commissioners of the District asked Overholser to report on the facts. This he did with the assistance of Dr. Samuel Hamilton and Dr. Frederick Parsons. In recent months, with the enactment by Congress of a bill to set up an alcoholic clinic financed by an additional 10% charge for liquor fees in the District of Columbia, Dr. Overholser was appointed by the Commissioners as the medical member of an advisory committee of six, which is now wrestling with the problem of establishing this clinic.

The most recent honor that has come to Dr. Overholser is of May, 1948, when he was elected a member of the National Board of Medical Examiners. This appointment is particularly noteworthy as being the first, we believe, in which a psychiatrist has been selected to be a member of this Board. In fact, Dr. Overholser was chosen in recognition of the need to have psychiatry represented on the Board of Examiners.

No record of Overholser's labors could overlook the fact that he has served in many capacities as an official of the American Psychiatric Association. For many years while in the State House in Massachusetts

he was a member of Council. For a number of years he was chairman of the committee on legal aspects of psychiatry, being one of the founders of the section on forensic psychiatry and for one year the chairman of that section. He was elected secretary of the American Psychiatric Association in 1941 and continued that post until 1946 when he was made president-elect. He took office as president in May, 1947.

Nonmedical activities have also consumed part of his time. For many years he has been active in the laymen's organization of the Unitarian denomination and a member of the Unitarian Service Committee since its organization in 1940. One of the projects of this committee is sending medical missions abroad. In May, 1946, he was elected Moderator—the highest post in the American Unitarian Association. He is a member of the Cosmos Club in Washington, a 32nd degree Mason, and a member of Sigma Xi.

Dr. Overholser has been a consistent and continuous writer; his bibliography extends well above 200 items. In collaboration with the late Dr. Winifred Richmond, formerly head of the psychological department of Saint Elizabeths, he prepared the textbook, "Handbook of Psychiatry," which Lippincott published in 1947.

He has been a member of the American Legion since 1920 and has served on the National Medical Advisory Board of the Legion since its establishment in 1945.

In 1941 he became president of the Board of Managers of the Washington Institute of Mental Hygiene, a Community Chest agency originally established by Dr. White. He is also on the executive committee of the Metropolitan Health Council and is a member of the Board of the Travelers Aid Society and the Social Hygiene Society.

Dr. and Mrs. Overholser have three children, Dorothy (Mrs. D. Richard O'Meara), Jane (Mrs. Lawrence MacKenzie) and Winfred, Jr., and five grandchildren.

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STUDIES IN ELECTRONARCOSIS THERAPY

I. CLINICAL EVALUATION¹

KARL M. BOWMAN, M.D., AND ALEXANDER SIMON, M.D.²

INTRODUCTION

When convulsive therapy was introduced as a treatment for schizophrenia, pharmacological methods were used to produce the convulsions, but these have generally been replaced by the electric current, which has proved simpler to administer and associated with less preliminary terror and apprehension. While convulsive therapy was originally presented as a treatment for schizophrenia, it is more than ironical that it has been found more specifically therapeutically efficacious in the treatment of the affective disorders. In 1945-1946, Tietz, *et al.* (1, 2), following the studies made by Frostig (3), van Harreveld, *et al.* (4), on electronarcosis in animals and men, presented the results they obtained in the treatment of 47 schizophrenic patients, and, on the whole, these results were considered excellent. Electronarcosis is not a new procedure. In 1902 (5), Leduc produced "electro-sleep" and general anaesthesia in animals by means of unidirectional pulse currents. He then tried the method on himself (6), and, although general anaesthesia was not produced, a "dream-like state" was described by him. It has been demonstrated by van Harreveld, *et al.* (4, 7), that the narcotic action of the electric current differs from chemical narcosis in that the narcosis depends upon the stimulating effect of the current in electronarcosis, rather than depression in metabolism. Globus (8) has studied the effects of this procedure on the brains of dogs and concluded that there were no significant pathologic lesions produced, although some of the animals received more than comparable therapeutic doses of electric current, in comparison with the treatment administered to human beings.

The purpose of the present investigation

was to study the clinical effects of electronarcosis upon such mental disorders as schizophrenia, manic-depressive psychosis, and psychoneurosis.

PROCEDURE

I. SELECTION OF PATIENTS

The first group of patients treated was suffering from schizophrenia of a type for which one would expect a poor outcome with any mode of treatment—with insidious onset, a duration of more than one year, and often failure with previous methods of shock therapy. As technical experience was gained, more acute schizophrenic reactions were added, and then cases of manic-depressive psychosis and psychoneurosis, particularly the obsessive-compulsive cases with symptoms of many years' duration. No patient was treated who was more than 40 years of age, and none with evidence of cardio-respiratory defect. All patients were voluntary admissions and none was forced to take treatment against his will except for the rare patient in the group who was so excited and confused as to be hostile to any procedure directed at him. As a result, it became necessary to interrupt treatment at any point when the patient became so apprehensive that he refused to accept more, and in a number of patients treatment was prematurely discontinued because of this.

Each patient, followed at regular intervals at least after 1 month, 6 months, and 12 months, was seen for personal interview by a psychiatrist, and when this was not possible a letter was received from the patient and his relatives evaluating his condition. He was regarded as recovered if he returned to his premorbid status, was making a good social and occupational adjustment, and expressed good insight. He was regarded as much improved if he returned to a good social and occupational adjustment but still showed remnants of the schizophrenic process in such symptoms as emotional dull-

¹ Read at the 103d annual meeting of The American Psychiatric Association, New York, N. Y., May 19-23, 1947.

² The Langley Porter Clinic and the Division of Psychiatry of the University of California Medical School.

ness. Improved indicated that there was some amelioration in the intensity of symptoms but that the fundamental process was unchanged. Unimproved status indicated failure.

II. TECHNIQUE OF ELECTRONARCOSIS

A. The Instrument

The instrument used for the induction of electronarcosis is similar to the one utilized by Tietz, *et al.*(1, 2), and has been described by Plesset(9). It is constructed so as to deliver a 60-cycle alternating current up to 250 milliamperes, and is provided with a regulator so that the treatment current is independent of the unpredictable resistance of the patient. The technique described by Tietz, *et al.*(1) has been followed.

B. Preparation of Patient

Before treatment, a careful psychiatric evaluation of each patient was made, a thorough physical examination performed, and the following laboratory studies made: blood count, urinalysis, blood Wassermann, X-ray of the chest, X-ray of the complete spine, and electrocardiogram. When the patient was cooperative enough, electroencephalograms were done before treatment, at varied intervals between treatments, and for varying periods after the termination of treatment. Psychological tests were performed before and after treatment. The spine was re-X-rayed after the completion of the series of treatments.

Those patients who were resistive, negativistic, or so disturbed that adequate application of electrodes was impossible were given .25 to 1.0 grams of sodium amytal intravenously before treatment. Each patient undergoing therapy was given a synthetic Vitamin B Complex containing thiamine chloride .005, riboflavin .003, nicotinic acid amide .015, pyridoxine HCL .003, calcium pantothenate .01, para-aminobenzoic acid .015, and ascorbic acid 25 milligrams to be taken by mouth 3 times a day.

C. Electrodes

The electrodes are made of stainless steel plates approximately 4.0 by 5.0 centimeters

in size, and are wrapped in several layers of gauze thoroughly soaked in 3% salt solution. Electrode jelly is rubbed over the areas where the electrodes are to be applied. In the first group of patients treated, each electrode was placed so that the lower edge was 4.0 centimeters above the upper border of the zygomatic arch, and 6.0 centimeters in front of the anterior border of the mastoid process. With the later group of patients treated, the electrode was placed over an area demarcated by a horizontal line drawn over the temple continuous with the highest point of the supraorbital margin, and a vertical line drawn from the point of the zygomatic process of the frontal bone. If respiratory distress, prolonged cyanosis, or laryngeal stridor occurs at low levels of maintenance current, this may be overcome by placing the electrodes in a slightly more anterior position.

D. Current Dosage

The initial current, usually 160 milliamperes, is set for the first treatment. Starting currents for individual treatments have varied between 130 and 200 milliamperes, although in the first treatment the initial current has been usually 160 to 180 milliamperes. A few patients have been treated by the "sliding" technique of raising the current from 0 to 150-180 milliamperes over a period of 1 to 3 seconds by smooth, steady turning of the current dial (personal communication from Dr. Tietz). The blood pressure and heart rate is noted at 60-second intervals; and the number of seconds of cardiac arrest at the beginning of treatment is reported. Excess saliva is removed from mouth and throat by suction and the patient breathes carbogen (5% CO₂ in O₂) throughout the treatment.

E. Reaction During Electronarcosis

When the current is switched on suddenly, there is an immediate tonic flexion of the extremities and of the torso (jack-knifing) followed after 10 to 15 seconds by extension of the legs. There is usually a period of cardiac arrest, at least heart sounds cannot be heard, for a period of 0 to 30 seconds (usually between 5 to 10 seconds) after which the heart rate is slow (as low as 30 per

minute) and rhythm irregular. The face, neck, and upper chest may become flushed for a period of seconds to 2 to 3 minutes. A strong pilomotor reaction and erection of the nipple may be observed. After the sudden initial flexion movement, the lower extremities go into rigid extension; the upper extremities either into abduction, adduction, flexion, or extension; the hands in a tetanic position or clenched into a fist with the thumb often thrust between the second and third fingers.

At 30 seconds the current is abruptly reduced to 60 to 90 milliamperes. Secondary currents have varied from 40 milliamperes, in one case, to 90 milliamperes, although in most cases they were about 80 milliamperes. Almost invariably, clonic twitches replace the tonic contraction and last for a period of 0 to 48 seconds, usually about 20 seconds. Respiration begins 30 to 70 seconds after the treatment is begun and is usually quite labored with evident flaring of the ribs. If the patient has received a large dose of barbiturate medication before treatment, or the initial current is too low, no clonic movements may appear, and respiration may begin almost immediately after the current is reduced to the secondary low level. When clonic movements occur, respiration generally begins immediately after they are terminated. After the first gasp, the airway is passed, the tongue blades removed, and catheters leading to a suction apparatus are placed in the mouth (one catheter is fixed in the airway, the other placed under the tongue). It is only occasionally necessary to use artificial respiration if breathing is difficult. The carbogen mask is placed over the nose and mouth and carbogen is supplied at an approximate rate of 12 to 15 liters per minute. Cyanosis occasionally persists into or through the second or third minute of treatment, but usually subsides before that time.

When respiration is well established, usually during the beginning of the second minute of treatment, the current is increased at the rate of 5 milliamperes every 15 to 30 seconds, depending on the character of the patient's respiration. Secondary currents have been raised from 40 milliamperes at 30 seconds (usually about 80 milliamperes) to

as high as 150 milliamperes. When stridor occurs, the current is held at that level or slightly below it; when it recedes it may be raised. Generally the current is not raised beyond a 120-milliamperere level, although the range in our experience has been 85 milliamperes to 150 milliamperes. When electro-narcosis has gone on 5 minutes, usually no further attempts to raise the current are made, although we have made exceptions to this rule, on occasion raising the current in the last 2 minutes of treatment without ill effect to as high as 150 milliamperes.

Patients vary in their reaction after respiration begins. The patient is quiet and relaxed for a few seconds after respiration begins, but spontaneous movements may begin shortly after the onset of respiration. If restless, semi-intentional movements occur early in treatment, the initial current or secondary current drop at 30 seconds is too low, and it is raised 10 milliamperes in the next treatment. Some patients display rolling movements of body, walking movements of legs, hopping movements with one leg, opisthotonic movements, and these indicate the primary and secondary currents have been too low. The upper extremities usually are in flexor tone, the hands in carpopedal spasm, the lower extremities in extension, the feet in plantar flexion. Forced grasping occasionally occurs and is an indication for increase in current. Clonic movements later in the course of treatment are indications to lower the current. Intermittent clonic dorsiflexion of the big toe is commonly seen. However, no convulsion has occurred during the course of treatment unless the reaction during the first minute of treatment is regarded as such.

Symptoms indicative of stimulation of the autonomic nervous system are observed in the excess salivation, lacrimation, pilomotor reaction, perspiration, erection of the nipple, slowing of the heart rate during first minute of treatment, tachycardia during the latter part; and the rise in blood pressure. Not every patient shows all these signs, however; nor are they seen in stereotyped fashion in the same patient with successive treatments. Enuresis occasionally occurs and ejaculations are occasionally observed.

Treatments were discontinued after 7 minutes, although a few were discontinued after

2 to 4 minutes because of respiratory distress, or after 2 to 6 minutes because the electrodes were moved from position during the restless movements of the patients. A few treatments were extended as long as 15 minutes, with no untoward effects and no unusual therapeutic effect, and it was felt it could be safely extended much beyond this (Frostig, *et al.* (3)).

F. Postnarcosis Reaction

The postnarcosis reaction follows generally a stereotyped pattern. Less often than after electroshock does an excitement follow, but if the patient is restless after his first treatment he usually displays restlessness after subsequent treatments. As a rule, the patients are quiet after treatment, much less confused than after electroshock, and for a shorter period of time. Quite often they will become conscious a few moments after treatment is discontinued and respond relevantly to questions.

No panic reactions have occurred in any of our patients. After one hour he is allowed to be up and about.

Posttreatment headaches and muscular aches are not uncommon, but posttreatment nausea or vomiting are rare.

G. Spacing of Treatment

Treatment was given 3 times a week. No severe confusional states as is sometimes seen in electroconvulsive treatment were seen on this regime. One patient was given 7 treatments on successive days without the development of confusion.

The policy of "tapering off" treatments after a series of treatments given 3 times a week, and after the patient has displayed improvement, was not followed.

H. Attitude to Treatment

The patient's attitude to treatment is much the same as the attitude to electroconvulsive therapy. Not infrequently he has an ill-defined dread of the treatment which is generally described as a fear of unconsciousness and of not awakening after treatment in much the same manner that he would fear an anaesthetic. With few exceptions the pa-

tient loses consciousness immediately and has an amnesia for the entire treatment procedure. When sufficient pretreatment sedation in the form of sodium amytal has been used he may not realize that he has been treated at all. Since memory disturbances are not particularly marked in electronarcosis treated patients, the panic experienced by some during electroconvulsive treatment as a result of this is not seen.

I. Respiratory Changes

As soon as the primary current is applied, respiration ceases, to begin usually in 45 to 70 seconds and when the clonic phase has been completed. Since the clonic movements usually last about 15 to 20 seconds, respiration begins 15 to 20 seconds after the secondary drop in current at the 30-second interval. When the initial current is too low, or the patient has been given a large dose of barbiturates, no clonic movements may appear, and in these cases respiration is apt to begin at 30 seconds when the current is reduced or in a few seconds after. At first respiration is infrequent and labored, the ribs flaring widely, but soon it becomes more regular, usually at a rate between 24 and 36 per minute. If the current is raised too rapidly or too high, respiratory stridor, due to spasm of the vocal cords (10) may develop, but this may be relieved by reducing the current slightly. When the apnoea persists beyond 60 seconds after the current has been applied, artificial respiration usually helps in starting spontaneous respiration.

In the early days of treatment, when ease of technique was being developed, it became necessary in several patients to suddenly stop the administration of current after 2 to 4 minutes because of failure on the part of the patient to breathe properly in spite of assistance with artificial respiration. This has been attributed to too high a primary or secondary current dosage, too posterior placement of the electrodes, or too rapid increment in dosage after the secondary drop. When the current is suddenly stopped, the respiratory distress quickly recedes and clears. During the period of apnoea, and in spite of artificial respiration, the patient may display marked cyanosis until regular

respiration is reinstated or the current is stopped.

J. Cardiovascular Changes

As soon as the initial current is administered, there is usually a cardiac arrest. There may be none at all, however, or the cardiac arrest may be as long as 30 seconds in duration, but usually it lasts about 4 to 8 seconds. After this the heart starts to beat slowly again, usually 30-40 per minute and the rhythm is apt to be irregular. In the next 1 to 1½ minutes it speeds up to as high as 180 per minute, but usually the pulse rate ranges between 120 and 160 per minute. If during the latter part of narcosis the current is raised precipitately 10-20 milliamperes, the pulse rate will suddenly drop, but this is not observed when the current is raised 5 milliamperes every 15-30 seconds until adequate narcosis supervenes. After the initial bradycardia, and when the tachycardia begins, the rhythm may be irregular, but ectopic beats and irregularities of the pulse may persist for as long as 5 minutes before they clear. When the rate is not very rapid a marked sinus arrhythmia may be observed.

Blood pressure changes are equally as marked as the pulse changes. Because of the marked rigidity and clonic movements during the first 45 seconds of treatment, determinations of blood pressure cannot be adequately made until after the first minute. Blood pressures generally rise rapidly after 1½ to 2 minutes of treatment and often reach systolic levels of 220 millimeters and diastolic levels of 120 millimeters. The highest blood pressure recorded in the series was a systolic pressure of 250 and a diastolic of 150. Sometimes this hypertension dropped toward the end of treatment, but often it persisted until the current was stopped after 7 minutes of treatment. In view of such alarmingly high blood pressures, hypertension should be considered a contraindication to this form of treatment, although one rarely hesitates to treat hypersensitive patients with the usual convulsive therapy. After the current is dropped the blood pressure quickly drops and often returns to the pretreatment level in 1 to 3 minutes.

The initial cardiac arrest followed by

bradycardia is attributed to vagal stimulation; the tachycardia and hypertension which develop later to stimulation of the sympathetic system.

One of the patients treated in this series developed auricular fibrillation and considerable respiratory distress during 2 minutes of treatment, when it was discontinued, the auricular fibrillation continuing for 3 minutes after the current was stopped. When this recurred on the second treatment, in spite of a reduced current dosage, it was decided not to continue with further treatment, in spite of the fact that there was no clinical or electrocardiographic evidence of cardiac damage before or after treatment.

III. COMPLICATIONS

A. Effect of Consciousness During Treatment

If the initial current is not high enough, or if the electrodes are placed too far forward, the patient is apt to be conscious during the treatment. When this occurs, he is almost invariably extremely apprehensive of further treatments and usually refuses to accept more. In several cases, the initial current of 160 to 170 milliamperes was sufficient to produce narcosis for a number of treatments and yet after several such a patient was occasionally conscious with a similar dose. If the patient could be persuaded to accept further treatments by increasing the initial treatment 10 to 20 milliamperes, unconsciousness was produced. As the initial current was as low as 160 milliamperes during the early treatments, most of the patients who were conscious during treatment experienced this during their first, second, or third treatments. It was judged that a patient was conscious during treatment when he responded to such simple orders as "Open and close your fist." Seven out of the total series of 53 patients treated met this criterion of being conscious during an individual treatment. The descriptions given by the patients of their subjective experiences during such a period were as follows: One patient said, "Oh God! I remember going up and up like machinery. My head was swimming with electricity." Another patient, a schizophrenic, whose chief complaint was that of "lack of feeling," in-

terpreted the experience as a therapeutically beneficial one and said: "I have never felt a more terrific experience. I saw a bunch of black and colored lights together and they seemed to be concentrated in the center. I thought it was the end for me." Another patient, a depression, who was conscious during his third treatment, described it as: "I felt as if it were the end of the world, like I was being electrocuted. There was a terrible pain in my whole head. I could hear you talking but I can't remember what you said." Another depressed patient, who was conscious during his second treatment, said: "I went through hell. I didn't think I could

B. Fractures (Table 1)

Fifteen of the 53 patients (28.3%) incurred fractures of the spine. Four of the patients complained of backache after the first treatment, 2 after the third treatment, 2 after the fourth treatment, and 1 after the seventh, eighth, and eleventh treatments respectively. Four of these patients had no back complaints at all, although they received 7, 20, 24, and 30 treatments respectively. Just as in electroconvulsive therapy, it is most important that any patient who complains of back pain should have his spine X-rayed, and this procedure was assiduously carried out in this series of patients.

TABLE 1
DISTRIBUTION OF FRACTURES OF SPINE

	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀	T ₁₁	Treatment
1	I	I	I	I	..	..	..	..	..	..	1
2	..	I	I	..	..	..	..	..	..	..	1
3	..	..	..	I	I	..	..	..	..	..	1
4	..	..	..	I	I	..	..	..	..	..	1
5	..	I	I	I	I	I	I	..	..	..	3
6	I	I	I	I	I	I	..	..	..	..	3
7	..	..	I	I	I	..	..	..	..	..	4
8	..	..	..	..	I	I	I	..	..	..	4
9	..	..	I	..	..	..	..	..	..	..	7
10	..	I	..	..	..	..	..	..	..	..	7*
11	I	I	I	..	..	..	..	..	..	..	8
12	..	..	..	..	..	..	..	I	..	I	11
13	..	..	..	..	..	I	..	..	..	..	20*
14	..	..	..	I	..	..	..	..	..	..	24*
15	..	I	I	I	I	..	..	..	..	..	30*
Total	3	7	8	8	7	4	2	1	..	1	

* Asymptomatic.

live through it. I was scared to death. My head felt like lightning and rumbling going through it. The memory of it is enough to depress me. I saw hundreds of millions of little dots against a blue background. I heard the doctors tell me to open and close my fist but it sounded far away. It was worse than the metrazol treatment that I got back in 1938." Still another patient, who had received .5 gram of sodium amytal prior to treatment indicated that he was conscious during his first treatment, but the effect of the sodium amytal was such as to mask his memory of the experience. All these comments are strangely reminiscent of the feelings of horror and apprehension experienced by patients between the period of injection of metrazol and the onset of unconsciousness.

The fractures were all located in the thoracic spine, the most frequently involved vertebræ being between T₅ to T₇. There were few compressions of the bodies of the vertebræ, most of the fractures being described as compression fractures of the upper plates. Treatment was usually discontinued if a fracture was found. Several of the patients had subsequent courses of electroshock therapy with preliminary curarization, with no exaggeration of the fracture or of symptoms. In general, if a fracture does not occur during the first 4 treatments, it will probably not occur in later treatments. Symptoms are those of backache, pain on movement or breathing radiating to the lateral and anterior chest. No serious sequelæ of an orthopedic or neurologic character have

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occurred, and symptoms have usually cleared within a few days to a few weeks, so that special treatment for the fractures has not been necessary. Vertebral fractures cannot always be prevented by hyperextension and by holding shoulders and hips in electro-narcosis any more than such a procedure invariably prevents them in electroconvulsive therapy.

Since we have begun the routine administration of 0.25 to 1.0 grams of sodium amytal intravenously before treatment, only 1 fracture has occurred in 10 patients so treated. We have not used preliminary curarization, but on theoretical grounds there should be no objection or contraindication to its use, although some of the patients may display considerable respiratory distress in the early minutes of treatment, and the curare may add to the dread and apprehension of the treatment.

The sudden muscular contraction characterized by tonic flexion of the extremities and of the torso at the beginning of treatment may produce fractures during electro-narcosis therapy as in electroconvulsive therapy.

No fractures were observed in this series of patients except in the spine. X-rays of the spine were taken before and after each series of treatments and whenever a patient complained of back pain, even if it were thought to be muscular.

The fractures varied in severity from minimal compressions of the upper plate to mild compressions of the bodies of the vertebrae. In no patient was a severe compression of the body of the vertebra noted as is seen in some cases treated by other forms of convulsive therapy. One patient incurred a fracture of the anterior superior lip of T₄ without compression. Four patients had only 1 vertebra involved, the others between 2 and 6 vertebrae. In all 15 patients 41 vertebrae were injured, an average of approximately 3 per patient.³

Dislocations of the jaw or extremities were not seen, nor were injuries to muscles, tendons, or ligaments observed.

³ In a later series of 35 patients on whom the "glissando" technique was utilized, only one fracture of the vertebral spine has occurred.

C. Increased Excitement

It was necessary to discontinue treatment on 3 schizophrenic patients after 3, 7, and 7 treatments respectively when they became so disturbed that they could not cooperate in the treatment, as this occurred during the early period of our therapy before the use of intravenous sodium amytal prior to treatment was instituted. The reactions of these patients were not regarded as "organic psychotic reactions" (Kalinowsky(11)). Whether the excitement was actually exaggerated by the therapy or would have spontaneously occurred without therapy could not be determined. With the use of intravenous barbiturate before treatment, even the most disturbed patient may be treated with electronarcosis. In none of the patients was a case of "organic psychotic reaction" observed even though one patient was given 30 treatments and several 20 treatments in a series, therapy being administered 3 times a week.

D. Other Complications

Two patients had nasal hemorrhages during the course of treatment, but they were able to continue with further treatments without a recurrence.

Another patient suffered a subconjunctival hemorrhage, but this did not prevent further treatment.

Petechial bleeding about the neck and upper chest was observed in one patient, but his bleeding time, clotting time, and platelet count were all normal. He was able to finish a course of 20 treatments without a repetition of the experience.

No neurological complication has been observed in any patient. There were no cerebrovascular accidents and no case of spontaneous epilepsy after termination of treatment.

None of the patients developed pulmonary disease during or after treatment. There was no instance of pulmonary abscess, exacerbation of latent tuberculosis or aspiration pneumonia.

COMPARISON WITH ELECTROSHOCK

Thompson, *et al.*(12), have reported on the clinical comparison of electronarcosis with electroshock. They have observed an

initial cardiac arrest in each group of cases, but the secondary slowing of the heart, which occurs in electronarcosis, does not occur in electroshock. The tachycardia continues for a longer period after electronarcosis than after electroshock. The blood pressure which may reach levels of 200 systolic and 120 diastolic in electronarcosis does not reach such levels in electroshock, and the hypertension persists much longer after treatment is terminated in electronarcosis than in electroshock.

It has been observed by us that respirations usually begin in each treatment soon after the clonic phase is terminated. If the initial current is so reduced (*i.e.*, 135 to 150 milliamperes) that a clonic stage does not occur at the 30-second interval when the current is reduced (60-90 milliamperes), then respiration is apt to begin soon after the initial current is reduced to the secondary level (approximately 35 seconds) or, if sufficient barbiturate is given to prevent clonic movements, then respiration would begin as soon as the initial tonic reaction is terminated.

Our own observations indicate that Tietz, Thompson, *et al.*(2), have not emphasized enough the clonic stage of electronarcosis, which they have described as "a few moderate or mild clonic contractions." The severity of these clonic contractions, while they generally do not reach the intensity of the contractions in electroshock, may on occasion do so. Their duration in our series varied from 0 to 30 seconds, which is in the range of the duration of the clonic stage in a good many cases treated with electroshock.

It is believed that the convulsive pattern in the first minute of electronarcosis is a necessary part of the therapeutic efficacy of the treatment, and that without it the results would be no better than with "petit mal" reactions in electroshock. One wonders, too, if the current is stopped at the 30-second interval, whether the results of treatment would be any different with electroshock therapy than with electronarcosis prolonged for 7 or more minutes.

It is certainly not the muscular discharge in rigidity or clonic movements, or the electric current itself, or the amount of current which are the important factors in therapeutic success. What may be important, however, are the physiological changes which occur in the brain when a convulsion occurs.

Whether this is produced by a chemical injected or by electric current administered for a fraction of a second, or for many minutes, may make little difference so long as the physiological changes in the brain which accompany a convulsion occur.

In both forms of treatment there is an initial flexion of the extremities followed by extension. The tonic phase in electroshock usually lasts less than 30 seconds, to be sure, as compared to electronarcosis, but the current is on only for a fraction of a second in electroshock, compared to the 30 seconds of initial current with electronarcosis. This initial current in electronarcosis is high enough that its stimulating effect prevents the clonic movements from breaking through until the current is lowered to the secondary level. It is doubtful, too, even if the clonic movements are milder in electronarcosis that they diminish the danger of fractures, as these may actually occur with the initial acute flexion of the extremities and trunk which may be just as severe in electronarcosis as in electroshock. This initial flexion may, however, be made less sudden and less intense by a "sliding" technique of reaching the initial current of 160 milliamperes, *i.e.*, over a period of 1 to 3 seconds.

In summation, it may be stated that what happens in the first minute of narcosis is fundamentally what occurs in electroshock—a tonic phase, followed by a clonic phase, during both of which periods apnoea occurs. What follows after this first minute is the result of continued electrical stimulation with a low current sufficiently high to keep the patient unconscious but in a state of heightened tonic. This is certainly not a narcosis in the sense of a drug narcosis, or anaesthesia with relaxation of musculature.

RESULTS

Electronarcosis therapy has been administered to 53 patients. Of these three were 37 cases of schizophrenia, 6 cases of manic-depressive psychosis, depressed type, one case of manic-depressive psychosis, manic type, and 9 cases of psychoneurosis (4 with anxiety and depressive symptoms and 5 with obsessive-compulsive symptoms). Only those cases who received more than 6 treatments were considered in the therapeutic results (Tables 2 and 3).

Group

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Anxiety

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TABLE 2

RESULTS OF TREATMENT ACCORDING TO DIAGNOSIS

SCHIZOPHRENIA

Group I

	No. of treats.	Imp. noted	End of treat.	At one month	At six months	At one year	Reason discontinued
1	1	0	Rec.*	Rec.	Rec.	Rec.	Fracture
2	4	2	Much Imp.	Rec.*	Rec.	..... †	Fracture
3	8	4	Imp.	Unimp.	Unimp.	Imp.	Fracture
4	9	0	Unimp.	Unimp.	Unimp.	Unimp.	Refused
5	14	2	Rec.	Rec.	Rec.	.....	Course
6	14	0	Unimp.	Unimp.	.....	.....	Refused
7	20	2	Unimp.	Unimp.	Imp.	Imp.	Course
8	20	5	Rec.	Rec.	Rec.	Rec.	Course
9	20	5	Much Imp.	Rec.	Rec.	.....	Course

Group II

10	7	3	Unimp.	Unimp.	Unimp.	Unimp.	Excitement
11	8	0	Unimp.	Unimp.	Unimp.	Rec.	Refused
12	20	0	Unimp.	Imp.	.....	.....	Course
13	20	9	Rec.	Unimp.	.....	.....	Course
14	20	7	Rec.	Rec.	Rec.	Rec.	Course
15	20	3	Rec.	Rec.	Rec.	Rec.	Course

Group III

16	1	0	Unimp.	Unimp.	Unimp.	Unimp.	Fracture
17	2	0	Unimp.	Unimp.	Unimp.	Unimp.	Nasal Haemor.
18	8	0	Unimp.	Unimp.	Imp.	Unimp.	Refused
19	10	0	Unimp.	Unimp.	Unimp.	Unimp.	Refused
20	12	12	Imp.	Imp.	Imp.	Imp.	Refused
21	17	0	Unimp.	Unimp.	Imp.	.....	Refused
22	20	5 †	Unimp.	Unimp.	Imp.	Imp.	Course
23	20	0	Unimp.	Unimp. §	Rec.	Rec.	Course
24	20	0	Unimp.	Imp.	Imp.	Much Imp.	Course
25	20	12	Imp.	Unimp.	Unimp.	Unimp.	Course
26	20	3	Much Imp.	Unimp.	Unimp.	Unimp.	Course
27	20	10	Imp.	Imp.	.....	.....	Course
28	30	20	Imp.	Imp.	Imp.	Much Imp.	Course

Group IV

29	7	0	Unimp.	Unimp.	Unimp.	Unimp.	Excitement
30	20	7	Much Imp. ||	Unimp.	.....	.....	Course
31	24	0	Unimp.	Unimp.	Unimp.	Imp.	Course

Group V

32	1	0	Unimp.	Unimp.	.....	.....	Fracture
33	2	0	Unimp.	Unimp.	Unimp.	Unimp.	Cardiac
34	8	0	Unimp.	Unimp.	Unimp.	Unimp.	Refused
35	20	0	Unimp.	Unimp.	Unimp.	Unimp.	Course
36	20	0	Unimp.	.....	.....	.....	Course
37	24	0	Unimp.	Unimp.	Unimp.	Unimp.	Course

PSYCHONEUROSIS

Anxiety

1	1	0	Unimp.	Unimp.	.....	.....	Refused
2	3	0	Unimp.	Imp.*	.....	.....	Fracture
3	10	0	Unimp.	Unimp.	Unimp.	Unimp.	Refused
4	20	3	Imp.	Unimp.	Unimp.	Unimp.	Course

Obsessive-Compulsive

5	1	0	Unimp.	Imp.*	.....	.....	Fracture
6	1	0	Unimp.	Unimp.	Unimp.	Unimp.	Refused
7	19	9	Imp.	Imp.	Imp.	Imp.	Course
8	20	0	Unimp.	Unimp.	Unimp.	Unimp.	Course
9	20	0	Unimp.	Unimp.	Unimp.	Unimp.	Course

TABLE 2—CONTINUED

MANIC-DEPRESSIVE PSYCHOSIS

Depression

	No. of treats.	Imp. noted	End of treat.	At one month	At six months	At one year	Reason discontinued
1	2	0	Unimp.	Imp. *	Rec.	Rec.	Refused
2	3	3	Much Imp.	Rec.	Rec.	.....	Refused
3	4	0	Unimp.	Imp. *	Rec.	Rec.	Fracture
4	8	5	Imp.	Imp.	.....	.....	Fracture
5	11	7	Rec.	Rec.	Rec.	Rec.	Refused
6	15	10	Imp.	Imp.	Course

Manic

7	21	7	Unimp.	Unimp. ¶	Course
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* Recovered after course of electroshock treatment.

† These patients did not return for follow-up interview, or sufficient time since completion of treatment has not elapsed.

‡ Relapsed later in course of treatment.

§ Insulin treatment begun 2 weeks after completion of electronarcosis.

|| Relapsed in 2 weeks; much improved again after electroshock treatment.

¶ Improvement after a subsequent course of electroshock treatment.

TABLE 3

RESULTS OF TREATMENT OF 31 SCHIZOPHRENIC PATIENTS

Group	I	II	III	IV	V	VI
Number of Patients.....	7	6	11	3	4	0
Average Duration of Illness	2 mos.	10.8 mos.	10.7 mos.	1.7 mos.	5.2 yrs.	0
Average Number of Treatments....	15	16	18	17	18	0
Condition at 1 Month						
Recovered	3	2	0	0	0	0
Much Improved	0	0	0	0	0	0
Improved	0	1	4	0	0	0
Unimproved	4	3	7	3	4	
Condition at 6 Months						
Recovered	3	1	0	0	0	0
Much Improved	0	0	0	0	0	0
Improved	0	0	6	0	0	0
Unimproved	2	2	4	2	4	0

Of the total number of 37 schizophrenic patients, one month after the end of treatment 7 were considered recovered, none much improved; but 2 of these had additional electroshock therapy after 1 and 4 electronarcosis treatments respectively, since the electronarcosis therapy was interrupted because the patients incurred fractures of the spine. Of the 9 psychoneurotics, none was considered recovered or much improved at the end of one month. Of the 7 patients suffering from manic-depressive psychosis, 2 were considered recovered, and none much improved one month after termination of treatment.

I. SCHIZOPHRENIA

In order to more adequately compare our results with the only previously reported

series of cases, these patients have been divided into 6 groups(2). The results are described in Table 2.

Group I consists of 9 patients who have had only one acute attack of no more than 3 months' duration. It is from this group that one expects the largest numbers of spontaneous remissions in view of the criteria of acute onset, the short duration of 3 months or less, and the frequent occurrence of affective features of depression, agitation, and fear.

The 5 patients who were considered recovered one month after the end of treatment were still well at the end of 6 months.

Group II consists of 6 cases who have had 1 or more episodes of acute illness within the last 2 years. In general one would consider that the prognosis for the presenting acute

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attack should be good for a spontaneous remission in this group. Of the 3 patients who were considered recovered at the end of treatment, each had a course of 20 treatments and displayed improvement at the third, seventh, and ninth treatments respectively. One of these patients relapsed within one month and is now receiving electroshock therapy under which she is displaying improvement in a manner similar to that observed under electronarcosis therapy.

Group III consists of 13 patients who displayed gradual development of symptoms over a period of 2 years or less. In these patients with an insidious onset and gradual development of symptoms, the prognosis is usually considered grave. The results obtained in this series are certainly not as striking as reported by Tietz, *et al.*(2). There were no recoveries in the group; only one much improved at the end of treatment, and she relapsed to the unimproved group at the end of one month. One of the patients, who was unimproved at the end of electronarcosis, received a subsequent course of insulin therapy, and recovered and has remained well for over a year. Another patient, who was unimproved at the end of a course of insulin therapy, displayed marked improvement after 20 electronarcosis treatments, only to relapse after one month and, in spite of a later course of electroshock treatments, is still considered unimproved.

Group IV consists of 3 patients who have had 2 or more attacks, the first occurring more than 2 years previously. One month after treatment all 3 patients were still considered unimproved. The duration of the last acute attack was 1, 2, and 3 months respectively. One of the patients was considered much improved at the end of treatment, only to relapse within 2 weeks. Under a later course of electroshock therapy, she showed marked improvement again.

Group V consists of 6 patients who have been displaying psychotic symptoms for 2 or more years. The duration of illness varied from 3 to 7 years, average 5.2 years. None of the patients improved.

Group VI was to include those patients who had never made an adequate adjustment because of organic damage to the nervous

system, mental deficiency, etc. None of the patients in this series fell into this category.

II. PSYCHONEUROSIS

There were 9 cases of psychoneurosis treated. The results have been just as disappointing as with electroconvulsive therapy.

A. Anxiety States

Four of the patients were suffering from anxiety and depressive symptoms. One was discontinued after the first treatment because of her intense fear of continuing since she was partially conscious during the procedure. A second patient was discontinued after the third treatment because she incurred a fracture. The other 2 patients received 10 and 20 treatments respectively and displayed no essential improvement. In one of these patients the depressive symptoms were partially relieved, but this could just as well have been attributed to her hospitalization and consequent removal from an intolerable situation as her depression returned as soon as she left the hospital.

B. Obsessive-Compulsive Neurosis

Of the 5 cases of obsessive-compulsive neurosis treated, 2 were discontinued after the first treatment, 1 because he incurred a fracture of the spine, and the other because of his extreme apprehension of the treatment as a result of being partially conscious during its administration. The remaining 3 had 20, 20, and 19 treatments respectively. Their duration of illness averaged 12 years. Only one of these patients displayed any improvement, and he had shown similar improvement after 9 electroshock treatments one year previously.

III. MANIC-DEPRESSIVE PSYCHOSIS

In order to compare the therapeutic efficacy of electronarcosis and electroconvulsive therapy, this psychosis, where therapeutic effects of electroshock therapy are so definite, offers an ideal proving ground. Since we observed few depressions less than 40 years of age, it was difficult to collect a large series of cases.

A. Depressed Type

Six cases were treated. Their ages varied from 23 to 40, average 33.6 years. The duration of illness ranged from 1 month to 5 months, average 3.3 months. One was discontinued after the second treatment and another after the third, because of their fear of continuing after being partially conscious during its administration. The former received 2 further electroshock treatments and recovered; the latter after 3 electroshock treatments was much improved, and was considered recovered at the end of one month. Another was discontinued after the fourth treatment because she incurred a fracture of the spine. After one month she was given 5 electroshock treatments under curare and recovered. In a subsequent depression, one year later, she recovered with another series of 5 electroshock treatments.

One was discontinued after the eighth treatment because he incurred a fracture, and at the end of treatment he was considered only improved, although there were many neurotic features in his clinical picture. Another patient improved after 7 treatments and was considered recovered at the end of 4 more. He had displayed a similar clinical response to 7 electroshock treatments 6 months previously in a similar depression. The last patient, diagnosed as a postpartum depression, showed much improvement after 15 treatments, although there were schizoid features in her clinical picture. The results are not dramatic and indicate that, although the series is small and limited, the clinical response of depressions to electronarcosis is similar to and certainly no better than that observed in electroshock therapy.

B. Manic Type

Only one case of manic excitement was treated. This patient received a course of electronarcosis therapy without improvement only to show great improvement after a subsequent course of electroshock therapy.

SUMMARY

1. Electronarcosis has been administered to a group of 53 mentally ill persons. The results of follow-up studies one month after treatment was completed may be summarized

as follows: 37 cases of schizophrenia were treated, 7 recovered; 9 cases of psychoneurosis were treated, none recovered; 7 cases of manic-depressive psychosis were treated, 2 recovered. However, if one includes only cases that received 7 or more treatments, the results one month after treatment would read as follows: 31 cases of schizophrenia were treated, 5 recovered; 5 cases of psychoneurosis were treated, none recovered; 4 cases of manic-depressive psychosis were treated, 1 recovered.

2. Of the 5 schizophrenic patients who received 7 or more treatments and recovered, improvement was noted at some time between the second to seventh treatment.

3. It is our impression that electronarcosis is of no value in the treatment of psychoneurotics, is certainly no better than electroshock in treating the manic-depressive psychoses, and is equal to electroshock in the treatment of schizophrenia. Our series are too small for any definite conclusions to be drawn, and the above estimation of the value of electronarcosis therapy is subject to revision after we have treated a larger series of cases.

4. Fractures of the spine occurred in 15 of the 53 patients treated, amounting to 28.3% of the cases. This percentage can be greatly reduced by the use of sodium amytal or by the new Glissando technique recently developed by Tietz.

5. Because of the extreme rise in blood pressure that occurs during treatment, electronarcosis should not be used on patients with hypertension or cardiac disease.

6. Electronarcosis is a more dangerous treatment than electroshock and is less simple to administer.

BIBLIOGRAPHY

1. Tietz, E. B., Thompson, G. N., van Harreveld, A., and Wiersma, C. A. G. Electronarcosis—A therapy in schizophrenia. *Am. J. Psychiat.*, 101: No. 6, 1945.
2. Tietz, E. B., Thompson, G. N., van Harreveld, A., and Wiersma, C. A. G. Electronarcosis, its application and therapeutic effect in schizophrenia. *J. Nerv. and Ment. Dis.*, 103: 144-163, 1946.
3. Frostig, J. P., van Harreveld, A., Resnick, S., Tyler, D. B., and Wiersma, C. A. G. Electronarcosis in animals and in man. *Arch. Neurol. and Psychiat.*, 51: 232-242, 1944.

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4. van Harreveld, A., Plesset, M. S., and Wiersma, C. A. G. The relation between the physical properties of electric currents and their electronarcotic action. *Am. J. Physiol.*, **137**: 39-46, 1942.
5. Leduc, S. Production du sommeil et de l'anesthésie générale et locale par les courants électriques. *Compt. rend. Acad. de Sci. Paris*, **135**: 199-200, and **135**: 878-879, 1902.
6. Leduc, S., Malherbe, A., and Rouxau, A. Production de l'inhibition cérébrale chez l'homme par les courants électriques. *Compt. rend. Soc. de Biol.*, **54**: 1297-1299, 1902.
7. van Harreveld, A., Tyler, D. B., and Wiersma, C. A. G. Brain metabolism during electronarcosis. *Am. J. Physiol.*, **139**: 171-177, 1943.
8. Globus, Joseph H., van Harreveld, A., and Wiersma, C. A. G. The influence of electric current application on the structure of the brain of dogs. *J. Neuropathol. and Exper. Neurol.*, **2**: 263-276, 1943.
9. Plesset, M. S. Description of electronarcosis machine. *J. Nerv. and Ment. Dis.*, **103**: 163-165, Feb. 1946.
10. Von Neergard, K. Experimentale Untersuchungen zur Electronarkose. *Arch. f. Klin. Chir.*, **122**: 100-150, 1922.
11. Kalinowsky, L. B., and Hoch, P. H. *Shock Treatments and Other Somatic Procedures in Psychiatry*. Grune and Stratton, New York, 294 pages, 1946.
12. Thompson, G. N., McGinnis, J. E., van Harreveld, A., Wiersma, C. A. G., and Tietz, E. B. Electronarcosis—clinical comparison with electroshock. *War Medicine*, **6**: 158-160, 1944.
13. Kalinowsky, L. B., and Barrera, S. E., and Horwitz, W. A. The "petit mal" response in electric shock therapy. *Am. J. Psychiat.*, **98**: 708-711, March 1942.

BRIEF STIMULUS THERAPY

PHYSIOLOGICAL AND CLINICAL OBSERVATIONS¹

W. T. LIBERSON, M. D.

Institute of Living, Hartford, Connecticut

INTRODUCTION

Electric convulsive therapy remains a treatment of choice or of trial for a considerable number of patients with so-called functional mental disorders. The possibility of brain damage produced by such treatment is still a debatable question (Alpers and Hughes(1, 2); Ebaugh *et al*(4); Globus *et al*(8); Neuburger *et al*(24)).

The understanding of the fundamental mechanisms involved in this therapy is still lacking. The following events should be considered.

Direct and immediate action of the current resulting in a profound change in the circulation, oxidation, and excitability of the brain; the setting up of a self-sustaining and self-propagating "excitatory state" (Rosenblueth and Cannon(28)) associated with electrical discharges in wide areas of the brain, and particularly in those responsible for convulsive phenomena; excitation of the autonomic nervous system (Gellhorn(6)); loss of consciousness and a postconvulsive stupor followed by a confusional state; retrograde amnesia and accumulated although transitory memory disturbances; pronounced, although probably mostly reversible, EEG changes (Levy *et al*(15)); physico-chemical and probably biochemical as well as metabolic changes in the brain and in the body; reversible endocrinal changes as suggested by amenorrhea in most of the female patients; changes in the pattern of highly organized nervous processes as revealed by conditioning techniques in animals (Masserman(23); Gellhorn(6)); fear of

treatments as a vivid reactivation of fear of death; organic-like prolonged confusional states (Kalinowsky and Hoch(13)), etc.

The major problem in research in convulsive therapy is to determine which one of these events has a therapeutic value. An appropriate modification of the stimulative technique will then permit the therapist to reinforce its effect.

It has been shown that mere anoxic episodes do not have any definite effect on the mental disease (Reitman and Frazer(26); Sillman and Terrence(30)). Neither does minor loss of consciousness with subconvulsive stimulation seem to have a full therapeutic action (Gottesfeld *et al*(10)). This leads to the suggestion that convulsions expressing a hidden dramatic increase of the excitatory state in the brain cells have major therapeutic significance. Some authors believe, however, that loss of memory and accumulated organic-like confusional states are also largely responsible for the therapeutic effect (see discussion by Kalinowsky and Hoch(13), p. 240). Others are inclined to stress such factors as discharge of accumulated tensions, the processes of disinhibition (Gellhorn(6)) and those of facilitation (Wilcox(32)). The influence upon sleep centers has been considered as an equally possible therapeutic factor (Liberson(16)).

The classical technique of electroshock offers, however, little possibility of dissociating different factors involved in the therapy. The threshold electrical energy required by this technique (in bitemporal application) is so high that the direct action of the current results in a series of unavoidable phenomena which may or may not play a therapeutic rôle. Such phenomena are memory disorders, profound EEG changes, confusional state, diffuse excitation of the autonomic system, endocrinal changes. To what extent these changes are useful to the patient and to which groups of patients, if any, has yet to be determined.

¹ Read at the 103d annual meeting of The American Psychiatric Association, New York, N. Y., May 19-23, 1947.

The author is indebted to Dr. C. C. Burlingame, the president and psychiatrist-in-chief of the Institute of Living, and to its medical staff for their interest and assistance. He also acknowledges the assistance of his technicians, Miss Miriam Clark and Miss Patricia Shanahan.

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In order to contribute to the solution of this problem we started a few years ago experimental investigations on animals and men, aiming at the physiological analysis of the excitabilities involved in the electric shock therapy. It seemed rather obvious to us that the electrical characteristics of the city current are not particularly suitable for electric stimulation of the brain at such high levels of intensity. The cortical excitability is rapid, at least in relation to induced motor phenomena. Waves available in the city circuits are relatively slow. Besides, they range from 25 cycles per second in Toronto to 60 cycles in the United States. A new technique has evolved from these studies—"Brief Stimulus Therapy" (BST). Some of these investigations have already been reported (Liberson(17, 19, 20); Liberson and Wilcox(21)); some will be reported *in extenso* at a further date. They will be summarized in this paper for the sake of completeness, together with the rest of the presented data.

ELECTRICAL FACTORS INVOLVED IN CONVULSIVE THERAPY

A convulsion is not induced by a single physiological stimulus. A series of stimuli is necessary to produce a summated effect. The exact anatomical structures and precise physiological, as well as biochemical, mechanisms involved in this reaction are far from being known. The mechanism of stimulation, however, can be visualized as follows:

Each stimulus produces a certain "excitatory state" with rapidly rising and declining phases. The summation of these "quanta" of stimulation leads to an achievement of such levels of excitation that a self-sustained and self-propagated pattern sets up. When the latter moves over the motor areas, a generalized convulsion results. Subcortical structures seem to be chiefly responsible for the "tonic" state while the clonic movements depend more intimately upon the motor cortex (Riser(27); Rosenblueth and Cannon(28)).

The following factors should be considered in the electrical stimulation:

1. Amplitude, duration, and form of each pulse of stimulating current.
2. Frequency of stimuli.

3. Total duration or total number of stimuli.
4. Grouping of stimuli.
5. Location of stimulation.

In the classical technique (Cerletti and Bini(3)), some of these factors are closely interrelated. With 60-per-second cycles, each pulse is made of two half-waves, opposite in direction. The duration of each half-cycle is about 8 thousandths of a second. The peak amplitude of the half-cycle is around 800 milliamperes for an average patient. The total duration of stimulation is usually below 0.4 second. Let us consider these different factors in detail.

PULSE DURATION ²

Fig. 1 shows the strength-duration relationship for reiterated stimuli as it results

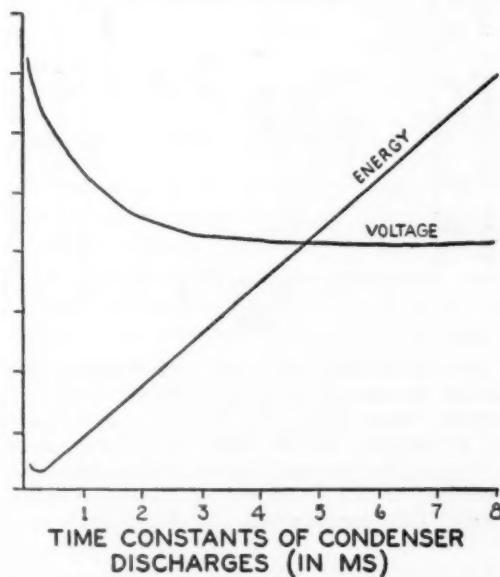


FIG. 1.—Strength-duration curve determined for the convulsive threshold in a rabbit. Voltage and energy are expressed in arbitrary units. Energy is calculated according to the V^2t formula. The frequency of the stimulation was 80 per second and the total time of the stimulation 0.5 second.

from animal experimentation (Liberson(17)). The peak current decreases until a pulse duration of about 2 milliseconds is reached. Despite a further increase of pulse duration, there is no more decrease in in-

² Various factors examined in this and following sections refer to vertex-temporal application of electrodes unless it is otherwise stated.

tensity, according to well-known electrophysiological laws (Lapicque(14)). In other words, for pulse durations outlasting a certain value, the additional quantity of electricity does not contribute to the convulsive effect. The duration of a half-pulse used in the classical technique is 8 milliseconds. The greatest part of the quantity of electricity used in this technique is therefore wasted, at least as far as the convulsive effect is concerned.

New findings emerged from our further research on patients:

1. There seems to be a change with age in the time factors of the brain excitability

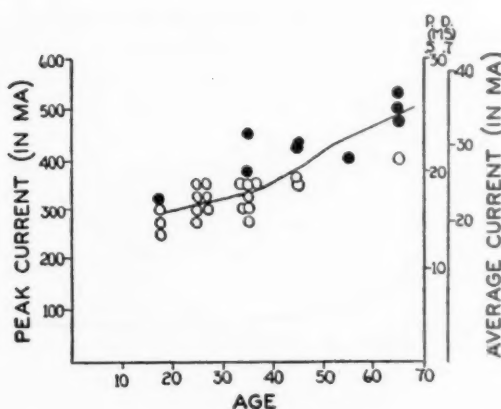


FIG. 2.—Strength-age curve; 29 patients. Open circles correspond to pulse-duration of 0.5 millisecond. Black circles represent pulse-durations of 0.7 millisecond. On the right side are represented corresponding average current values for pulse-durations (P.D.) of 0.5 and 0.7 millisecond respectively. Total duration was 1 second throughout.

(Liberson(20)). Thus there is greater difference in current thresholds with brief stimulus than with the classical technique when young patients are compared with adults of involutional or old age (Fig. 2).

2. Pulse durations close to the chronaxie values (0.15 to 0.3 millisecond) proved to be impractical for the following reasons:

- It is difficult to preset an exact threshold value with such pulse duration.
- Patients may show at times a partial insight during the convulsion ("dissociated pattern").
- Vertebral compressions seem to be more frequent because of high peak currents required for such stimulation.

For all these reasons, pulse durations used now in BST are 0.5 millisecond for patients below the age of 40, and 0.7 millisecond for those above 50 years. Either value is used between the ages of 40 and 50, depending on the physiological age of the patient.³

The use of pulse duration of 0.7 millisecond may be also required when the threshold peak current increases too rapidly during a series of treatments,⁴ when the patient has had recent therapy with the classical technique, or when the patient is too fearful. Pulse durations of 0.7 millisecond are routinely used in bitemporal stimulation.

Total Duration of Stimulation

It was found by early investigators (Grey Walter(31)) that the threshold current decreases with the total duration of the stimulation. Short durations have been used in the classical technique, while stimulation is spread over 2 to 4 seconds in the Friedman-Wilcox-Reiter technique with unidirectional, slightly modified half-sine wave pulses (Friedman and Wilcox(5)). The total duration which we have been using with BST varies between 0.7 second and 1.6 seconds with an average of 1 second. Fig. 2 represents the currents as a function of the total durations in a group of patients between 20 and 40 years. The shortest total durations have been practically abandoned as they require higher peak currents and reiterated stimulations. The latter has been associated in some patients with prolonged apnea, while the former increases the number of vertebral compressions. When longer total durations are used with low peak current, the patient is likely to experience partial insight during the convulsion, which may be of an unusual type (see below). In some cases, the patient breathes throughout the convulsion. These features increase the fear of treatments and should be avoided. Conversely, no fractures were observed with threshold stimulations of 1.6 seconds total duration.

One to 1.3 seconds seems to be an optimum total time of stimulation. It is a good tech-

³ More detailed practical indications of the BST technique will be found in a previous publication (Liberson(20)).

⁴ These changes are more marked in older patients.

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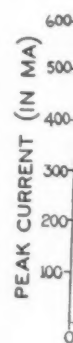


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nique to determine the threshold current for one-second duration and to increase this duration to 1.3 seconds without decreasing the current during the subsequent sessions, at least in patients who are fearful of the treatment.

Frequency of Stimulation

Each pulse produces a "quantum" of stimulation. The rate of repetition of stimuli, leading to a summated effect, depends upon the time constant of the delay of each "quantum." There are also many additional factors, such as the duration of the after-discharges, interference of reverberating circuits, spatial summation, etc. Experi-

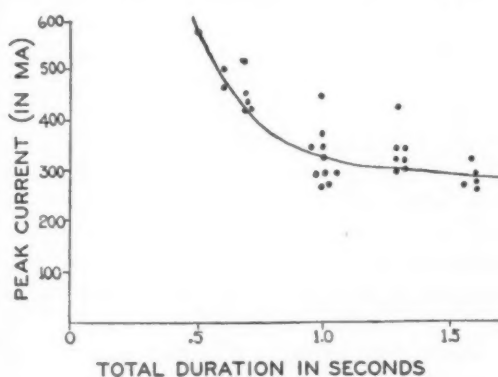


FIG. 3.—Strength-duration curve for total times of stimulation; 31 patients. Pulse durations were of 0.5 to 0.7 millisecond.

mental study showed that the minimum energy expenditure is observed when the frequency of pulse repetition reaches 120-200 per second (Liberson(17)).

Therefore, 120-per-second stimulation is physiologically acceptable. When 60-per-second stimulation is used instead of 120, the total duration of stimulation has to be twice as long, the other factors remaining the same. This may be an advantage when the timer is not used (according to Friedman-Wilcox-Reiter-technique) or possibly during electronarcosis.

Repeated stimuli can be secondarily interrupted 15 or 20 times per second, as in the case of Friedman-Wilcox-Reiter (FWR) technique. If this is the case, the total duration should be proportionally prolonged.

The possibility of such interruption is

based on the "self-sustaining" character of the underlying excitatory state. Thus, when a stimulation fails to produce a response, an additional stimulation administered 2 seconds later may elicit the convulsion. The second stimulation may be shorter in its total duration and the current may remain the same. The following example illustrates this finding.

Mrs. O., 37 years, involutional melancholia

2-3-47... Peak current... 425 ma }
Pulse duration... 0.7 ms } No convulsion
Total duration... 0.5 sec }

2 seconds later:

Peak current... 425 ma }
Pulse duration... 0.7 ms } Major convulsion
Total duration... 0.3 sec }

2-10-47... Peak current... 475 ma }
Pulse duration... 0.7 ms } No convulsion
Total duration... 0.5 sec }

2 seconds later:

Peak current... 475 ma }
Pulse duration... 0.7 ms } Major convulsion
Total duration... 0.3 sec }

Other possibilities of summation of stimuli have not been fully explored. Thus groups of stimuli (pairs, triplets, etc.) with an interval of the order of a millisecond may produce a great summated response in various nervous mechanisms (see bibliography in Lloyd(22)).

Form of Stimuli

A systematic study of different forms of stimuli suitable for inducing a convulsion has yet to be performed. In the previous studies, different types of stimuli have been used (Liberson(17, 19, 20); Liberson and Wilcox(21)). These studies suggest that square waves are not the optimal form of stimulation. Offner has treated the problem mathematically and has arrived at the analogous conclusion (Offner(25)). He states that exponentially rising current will stimulate with least power. A square waves current requires only 22% more. The form of stimuli inducing convulsions approaching the optimum may be produced by the double condenser device designed by Lapique(14).⁵

⁵ In practice, when square waves reach a high amplitude, the machine usually delivers waves with a round top.

There is still considerable room for research to determine the "best" form of the stimulus. This may be associated either with minimum quantity of electricity or minimum energy of stimulation or an unequal distribution in time of both of these factors. The achievement of minimum energy of stimulation is sometimes made undesirable in view of some features of the threshold stimulation to be discussed below. This is true at least of vertex-temporal stimulation. In the bitemporal stimulation, there may be an advantage in decreasing the threshold energy, which is still relatively high.

A new development in BST technique has been achieved by the introduction of a slow component of very low amplitude with an opposite direction to the "spike." This has been introduced as a safety device in order to neutralize a possible electrolytic effect of summated stimulation and to prevent a constant continuous current from reaching the electrodes.

Location of the Electrodes

While, in the conventional technique, bitemporal or bifrontal electrodes are used, the vertex-temporal position, left or right, is widely in use in BST. Biparietal applications require less current than the bitemporal (Gottesfeld *et al.* (10)). Friedman and Wilcox showed that a convulsion is obtained with the lowest current when the unidirectional half-sine pulses are applied in the temporal-vertex regions (with positive electrode on the vertex). A direct comparison of the threshold current used either in bitemporal or vertex-temporal application of "brief stimuli" showed that the former requires 1.5 to 2 times as much current (peak) as is used in the latter, the other factors remaining the same.

On the other hand, the pattern of electric shock may be different with different localizations. The differences in convulsions will be discussed below. It may be observed that, when the electrodes are placed closer to theinion than to the nasion, respiratory troubles and vomiting may occur. When the electrodes are placed closer to the nasion than to the inion, the patient may complain of "flashes of light" by direct stimulation of the optic nerves.

The skin resistance is higher in vertex-temporal position than in bitemporal. It is usually brought down to 500-1,000 ohms by a preliminary use of alcohol and ether, as well as by rubbing of electrode jelly into the skin. The skin resistance tends to become higher with increasing number of convulsions.

The "actual resistance" during stimulation is also higher in the vertex-temporal than in the bitemporal stimulation. Thus it is of 500-700 ohms in the vertex-temporal position and usually not over 500 ohms in the bitemporal (Liberson and Wilcox (21)).

Current

Brief stimulus machines⁶ are provided with a constant-current device which is effective between large limits. There may be, however, a change in the peak amplitude of 20-30% when resistance changes from 250 to 1,500 ohms. When the initial resistance is too high, this device is therefore not fully effective. This may result in a progressive increase of the amplitude of the initial pulses of the stimulating current. The machine is provided with "peak" and "average" current meters.

With the bitemporal application (with pulse duration of 0.7 millisecond and total duration of 1.3 seconds) the peak current is generally of 400-650 milliamperes, according to the age of the patient. This is lower than the usual peak currents used in the classical technique (with shorter total durations). In the vertex-temporal position, the peak current is much lower in the FWR techniques. This may result in less penetrating stimulation with the latter technique.

The average current in BST is considerably lower than with any other technique of shock therapy. In vertex-temporal position,

⁶ Various BST machines were built on our specifications. The first machine was built by Traugott, Electrophysical Laboratory, New York. A special machine was built by Grass, Quincy, Mass., to be used with a city current of 25 cycles. Most of the machines have been built by Offner, Offner Electronics, Chicago. Most of our present knowledge of BST has been secured with Offner's machines. When comparison is made to the classical type of therapy, we refer to the machines built by Rahm, New York. Reiter machines (New York) were used for the Friedman-Wilcox-Reiter technique.

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it varies between 14 and 40 milliamperes (with the shock duration of 1-1.5 seconds, pulse duration of 0.5-0.7 millisecond, and frequency of repetition of 120 per second) instead of 40-90 milliamperes with the Friedman-Wilcox-Reiter technique. The current is still below these values with 60-per-second stimulation and pulse duration near chronaxie (0.15 to 0.3 millisecond). In the bi-temporal position it is between 35 and 50 milliamperes (instead of 500-1,200 milliamperes with the classical technique with shorter total duration). This represents a considerable drop of the threshold quantity of electricity needed to produce a convulsion with BST.

The threshold current is a function of the age of the patient. When vertex-temporal application is used (Fig. 2) (with 1 to 1.3 seconds total duration and 0.5 pulse duration), the peak current is 225 to 325 milliamperes for patients below 20 years of age; 300-400 milliamperes for patients between 20 and 40 years; 350 to 650 milliamperes for those over 50 years (the pulse duration used in the later age group being 0.7 millisecond).

CONVULSIVE REACTION

Latency Time

One of the major features of the convulsive reaction induced by BST in the vertex-temporal position is the very short latency time. In the great majority of cases, it is less than one second, and is seldom as long as 2 seconds. This is definitely at variance with the latency times observed with the classical technique where the reaction time may be as long as 50 seconds. Unfortunately the latency times observed with BST cannot be directly compared with those of convulsions induced by Friedman-Wilcox-Reiter technique. Indeed the latter implies a continuation of the stimulation until the beginning of the convulsion.

The presence of the short latency times has one important practical application. If the first stimulation fails to produce a major reaction, it can be repeated without waiting for more than 2 seconds. The anxiety reaction due to the subconvulsive reaction may thus be "obliterated" by the major convulsion produced by the second stimulation. As

was mentioned before, the latter is followed by a convulsion even if the current is not increased. In certain cases, however, the current will be increased for the consecutive trials by 25-75 milliamperes (peak current).

Convulsive Pattern

The pattern of the major reaction is essentially the same as that obtained by classical methods. There are, however, some fundamental differences. There is a lower incidence of the initial cry. On the other hand, the convulsion is slightly prolonged, although the muscle activity is not as severe on the whole as with the classical technique. In 18 patients the average duration of the tonic phase was 8 seconds; that of the clonic phase, 41 seconds. In 4 patients comparison could be made on the same patients between the durations respectively found after conventional and BST stimulation. With the latter, the tonic phase averaged 1 second longer, the clonic 8 seconds longer.

There are, however, considerable individual differences. There are patients who present a very mild convulsion which cannot be produced by the classical technique; many patients may exhibit a convulsive pattern analogous to the average convulsion produced by the conventional technique. On the contrary, very severe convulsions can be produced with BST only by a faulty technique (extremely high peak current). When an unduly low peak current is used, there may be some preponderance of head movements around the vertical axis (the patient saying "no" to the doctor) instead of the usual movements around the transverse axis (the patient saying "yes" to the doctor).

It is during such mild convulsions that the patient may present an unusual pattern of dissociation of convulsion from loss of consciousness. During such convulsions, the patient may conserve a partial insight and claim having perceived rhythmical movements. At times this dissociation results only in an incomplete retrograde amnesia for the stimulating period. This is never described as painful, but definitely unpleasant. The patient feels that he is being lifted in the air, is seeing lights, or hearing the nurse's voice ("ready, doctor"). These reactions have a great doctrinal significance as they

show that the total pattern of major reaction is made of the association of many events which can be partially dissociated. These dissociations should be very carefully avoided as they increase fearfulness and make the patient resistive to the treatment. It seems that such dissociation is favored by the use of very brief stimuli—0.3 millisecond or below—or of the very long total durations of stimulations usually associated with low peak current. There are, however, individual differences with the possible predominance of dissociated patterns in neurotic anxiety states. "Dissociated reactions" may be prevented by moderate increase of all factors involved in the stimulation (see below).

Associated Sympathetic Phenomena

There is the usual dilation of the pupils and pilomotor reaction. However, the latter is in general less pronounced than with the classical technique. Only exceptionally did we observe involuntary incontinence.⁷

POSTCONVULSIVE PERIOD

Postconvulsion confusional state is definitely shorter with BST than with the conventional technique. Here again, a great variety of individual differences are observed. Some patients may show the same duration of postconvulsive confusion that the average individual submitted to the conventional technique does. Some present exceptionally short durations of the confusional state and one or two minutes after the convulsion may be completely oriented. We observed patients in perfect contact while still presenting dyspnea following the convulsion. Previous research demonstrated that patients are likely to remember words, numbers, and to recognize designs presented to them before stimulation better than with the Friedman-Wilcox-Reiter technique (Liberson and Wilcox(21)). This despite the fact that the latter produces a lesser degree of amnesia than the classical method. When specific determinations of "times of orientation" are made respectively after the classical pro-

cedure or after BST, one finds in all patients at least a doubling of this time with the conventional technique. These studies will be reported in detail in the future.⁸

The patient leaves the treatment room well oriented and perfectly steady in his gait. At this time, he usually has a retrograde amnesia for the period following or including the fixing of the electrodes. This procedure, however, may be remembered later on. The minority of patients who relate the unpleasant experiences of the treatment also usually do so many hours after the convulsion.

DELAYED PSYCHOPHYSIOLOGICAL CHANGES

A recent paper describes interesting studies of the fear reaction to the treatment by the conventional technique (Gottesfeld, Baker, and Anglas-Quintana(9)). Eighty percent of the patients reported such fear. The percentage of patients showing a fearfulness toward treatment is hardly superior with the BST. However, the vivid antipathy toward the treatment is observed in greater proportion of patients submitted to BST than to the classical type of shock therapy. For one thing, the patient verbalizes his fear (which is present on a more conscious level) in a better manner. He conveys his impressions in more convincing form to his doctor as he does not present the accumulated confusional and amnesic pattern of the classical treatment. This fear is considerably reduced if particular care is taken in order to avoid minor reactions not followed immediately by a major convulsion. An increase of peak current or a prolonged stimulation time are recommended for such patients. The pulse duration may also be increased. New techniques may be developed in order to avoid such effects (see below). However, if full benefit of BST regarding the intellectual function is desirable, the treatment should be given to such patients after an intravenous

⁸ The time of recognition shows a trend toward an increase when bitemporal electrodes are used according to Scherer (personal communication (29)). This author also observed a significant difference in the muscle strength measured after the convulsion elicited either with bitemporal or vertex-temporal position of the electrodes. Voluntary effort is much more decreased after bitemporal application.

⁷ There are more patients with persistent menstruation under BST than with the classical technique. However, the number of patients observed is not yet sufficient to quantify the differences.

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injection of sodium amytal or pentothal according to well-known techniques (Wortis (33)).

Intellectual Functions

The main advantage of the BST technique is the avoidance of the memory disorders or of the intellectual impairment, even transitory. Although usually of a transitory nature, the latter still constitutes a dreaded feature of the conventional convulsive therapy. The complaints of memory disorders are exceptional with BST, at least when less than 25 treatments are administered. Usual tests of memory (Wechsler) or intellectual functions (Shipley-Hartford test, "series sevens," BLR) fail to detect any impairment. They often show an improvement after a series of 10-20 treatments. The examinations were performed on the fourth or fifth day following the end of the series. The "word association index" which we defined in a previous study (Liberson (18)) also improves, although the average reaction times for neutral and traumatic words are slightly prolonged. Again, these changes are less marked than with the classical technique. These results will be reported in detail elsewhere.

An important practical consequence of these findings is the facilitation of psychotherapy needed by the patient, who, free of memory disorders, is better capable of integrating consecutive psychotherapeutic sessions.

EEG Changes

These confirm the general impression of less drastic changes of the brain function than with the conventional type of treatment. There are also considerable individual differences. Thirty-five percent of the patients do not show any change in the resting EEG after 10 convulsions (the fifth day after the last treatment). Only 10% show bursts of delta waves slower than 5 per second. As it has been proved for the Friedman-Wilcox-Reiter technique (Liberson(17)), the EEG changes are almost entirely bilaterally symmetrical despite a unilateral application. This suggests that they are due to a physiological mechanism rather than to a direct influence of the current. Although less damaging than

the classical method, BST produces some degree of physicochemical changes of the brain function as it is suggested by the more or less abnormal EEG pattern in about a half of the population. These changes increase with the number of convulsions and decrease with the number of days following the last treatment.

COMPLICATIONS

The number of patients submitted to BST is not sufficiently high to warrant precise statistics of complications. In 80 patients treated at the Institute of Living by BST, no major complication occurred. One patient presented prolonged apneas, progressively increasing with the consecutive treatments. The treatment had to be discontinued and the patient made a remarkable improvement after his seventh treatment with most prolonged apnea. There was no fracture of the extremities, although three mild vertebral compressions were observed. However, it has to be borne in mind that physiologically BST may be as effective as the classical method in producing violent direct muscle contractions and apneas. These are important limiting factors in increasing the peak current. All usual precautions should be taken in order to reduce the incidence of these complications.

THERAPEUTIC EFFECT

Among 80 patients treated at the Institute of Living by BST, only 46 were submitted to this therapy alone. In other patients, the classical method was also used. Only the first group will be considered in this paper. The follow-up in these cases has been relatively short, not extending more than 5 months after the end of the series. The following patients have been treated:

Thirteen patients with *involutional psychoses* (melancholia 10, paranoid 3). All improved but only 10 have been considered as recovered. The average number of treatments in recovered patients was 12.

Three patients with *manic-depressive psychoses* (all depressed). Two were considered as having obtained full remissions; one was considerably improved but his treatments had to be discontinued because of prolonged

apneas. The average number of treatments in recovered patients was 9.

Three patients with *reactive depressions*. All recovered with an average number of 9 treatments.

Three *psychoneurotic* patients. Only one was considered as recovered (anxiety state), another was improved (anxiety state) and no change was observed in the third (obsessive-compulsive).

Twenty *schizophrenics* (11 paranoid, 6 mixed, 2 hebephrenic, 1 catatonic). Nine were considered as remissions; 9 as only superficially improved; and 2 without improvement. Among these two patients, one was initially diagnosed as hebephrenic, while the other showed the predominantly hebephrenic features during the course of the treatments. The average number of treatments in patients with remissions was 17. A catatonic patient considered as a complete remission received 30 treatments.

Two *psychopathic personalities* with, in both cases, symptomatic improvement.

Two patients with *cerebral arteriosclerosis*, improved to a different degree.

If one bases his opinion on the immediate results, no definite difference between the BST and conventional technique is found, except that with the former much less confusion or memory disorders are encountered.

In some cases of schizophrenic patients, therapeutic results seem to be obtained with the classical technique while the patient presents some organic-type disturbance covering up his fundamental psychopathology. When the somatic effect of the therapy is dissipated, the original psychosis may gradually emerge again. In such patients, BST may fail to produce as rapid an improvement, the patients continuing to exhibit their psychotic trends until more treatments are given, with, in favorable cases, a delayed remission. In depressed patients there have been many instances of transitory hypomanic reactions. It seems that the appraisal of the progress realized by the patient is facilitated with BST.

Another feature in BST is a rapid improvement of catatonic features in some patients with a gradual uncovering of paranoid or hebephrenic features concealed previously by catatonic excitement or stupor.

There has been a tendency to give a relatively great number of BST treatments in order to "consolidate" the therapeutic results, except when there are somatic contraindications. As such treatments are not followed by as much organic disturbance as with the classical ones, one should be particularly eager not to stop the treatments too early. The usual range is 8-15 treatments in depressive cases and 15-30 in schizophrenics. The number of weekly treatments ranged between 1 and 5, 3 being average.

DISCUSSION

Physiological Considerations

Previous research demonstrated that convulsions elicited with brief stimuli of optimal duration require considerably less electrical energy than in the classical technique (Liberson(17)).

The present study showed that these experimental possibilities could not be completely realized in electric shock. When the optimal strength-duration relationships are used for induction of a convulsion, other events of the total electric shock pattern may fail to appear. Thus with ultra-brief stimuli and slowly summated stimulation, the patient may conserve a partial insight during the convulsion; he may present an incomplete retrograde amnesia for the period of stimulation. These are limiting factors which make it necessary to use slightly longer stimuli than those recommended in the early studies (Liberson(17); Liberson and Wilcox(21)). Even with these stimuli the present-day BST permits to elicit convulsions with far less electric energy or quantity of electricity than any other existing electric shock technique.

The observed facts, however, have important theoretical and practical implications. Different events of the total pattern of the electroshock appear as much less inter-related than is usually accepted. Not only do complete loss of consciousness, amnesia, apnea, autonomic nervous activity, confusion, fear, EEG changes, and dysmenorrhea appear as unequally affected by the change of different factors of the electrical stimulation (particularly time factors), but the convulsion itself may present different

degrees and various aspects under such diversified conditions. The change of the pattern of threshold stimulation (particularly as far as head movements are concerned) suggests that, even when a major reaction is produced, the "excitatory state" of which a convulsion is but one expression may be more or less widely distributed in the brain. A full development of such excitatory state may therefore require stimulation above the convulsive threshold.

Excitabilities associated with these different events of the total electroshock are therefore characterized by different time factors. The brief duration of stimuli inducing one event may not be brief enough or slow enough for inducing another event. The optimal frequencies and summation times appear also to be different, and so, probably, are the characteristics of the underlying "after-discharge" phenomena. BST has been developed on the basis of the experimental analysis of the excitabilities involved in the convulsive reaction. The study of strength-duration relationships in mechanisms associated with other events of electroshock should be carried out. A combined stimulation of these mechanisms with selectively adjusted strength-duration relationships will constitute further developments of BST. The classical electrophysiological research of Lapicque and Wyss suggests new possibilities in this direction (Lapicque(14), Wyss (34, 35)).

On the other hand, a better command of a local stimulation will undoubtedly contribute to the same result. A recent paper stresses this point (Heath and Norton(11)) and the findings of these authors are supplemented by certain facts described in the present study.

Age Factor

The presence of a change with age of the strength-duration characteristics of the excitabilities involved in the electroshock has not only practical significance (in presetting the threshold values) but offers new avenues to an understanding of the evolution and involution of the human brain. The differences between various age groups become particularly manifest during a prolonged series of therapy. After repeated convulsions, the

excitabilities slow down more rapidly in older patients than in young individuals.

CLINICAL CONSIDERATIONS

In *affective* disorders, BST proves to be as therapeutically effective as the classical technique. In this field, it appears as the treatment of choice. Its greatest advantage is the avoidance of intellectual disturbances and dramatic EEG changes. This finding confirms that such drastic changes are not necessary in order to obtain recovery in all types of mental disease amenable to the electric shock therapy. The pitfalls of BST are associated with an increased fear toward the therapy in some patients. This fear may be explained in most of the patients by an "unobliterated" minor reaction or by "dissociated" patterns of the electric shock. This difficulty can be considerably reduced by a more careful choice of different factors of electric stimulation or by sedation given to the patient prior to treatments.

In *schizophrenia*, BST, like the classical electric shock therapy, fails to produce remissions or even satisfactory improvement in many patients. A definite opinion of the comparable value of these techniques cannot yet be formed, as longer follow-ups and larger series of patients are required for such studies. However, paranoid patients responded slightly better than it was expected. A definite asset of BST is the possibility of greatly increasing the average number of treatments without danger of damaging the brain.

In *psychoneuroses* (except reactive depressions) results are not yet available.

VARIANTS OF BRIEF STIMULUS THERAPY

There is no reason to believe that exactly the same therapeutic mechanisms operate in different patients. It is possible that a patient may benefit from a transitory confusional state or partial memory disorder, although this has not been proved as yet; many individuals would be only unnecessarily penalized by such complications. Some patients may benefit from a fear reaction. From this viewpoint, it may be desirable to develop a technique which would selectively produce these various effects.

Repeated convulsions produce lasting modifications in wide areas of the brain submitted to repetitive discharges of nervous impulses. The somatic "climate" of mental functions is deeply modified for a few weeks or a few months by this therapy. Thus opportunities are open to a reintegration of the conflictual mental situations at a different physiological level (Liberson(19); Ivanov-Smolenski(12); Wilcox(32)). Various degrees of such functional changes, however, are required by different individuals and different mental disorders. The routine procedure of BST offers a possibility of reducing the "dose" of shock therapy in patients who do not need drastic changes of the brain function. Conversely, it seems that some BST variants could provide more drastic forms of therapy. BST may be applied in bitemporal position, which requires more current and is followed by more memory disturbances. Geoghegan(7) at the Ontario Hospital has used BST for inducing 2-6 convulsions a day, with the intervals varying from a few minutes to several hours. This technique proved to be very effective in agitated manic and depressed patients. On the other hand, classical treatments can be interspersed with BST in some patients when a certain degree of memory disorder is considered as beneficial.

Various "hybrid" forms between different techniques of electroshock and between electroshock and electronarcosis may further increase the flexibility of BST, which has already proved its clinical validity.⁹

CONCLUSIONS

1. Brief stimulus therapy was administered to 80 patients, 46 of whom had no other type of shock. In the latter group, patients with affective disorders were recovered in about 80% of cases; the remaining patients were all improved. In 20 schizophrenic patients, 45% of remissions were procured (with only a brief follow-up) and 2 patients were

not improved. Both unimproved patients showed predominant hebephrenic features.

2. The assets of BST are the avoidance of memory disorders and of pronounced EEG changes; shorter postconvulsive recovery; facilitation of psychotherapy; and lower incidence of vertebral compressions.

3. The pitfalls of BST are all associated with an increased fear of treatments in some patients. This fear seems to be related to "unobliterated" minor reactions and an occurrence of "dissociated shocks." Different procedures are suggested to decrease such fear.

4. Physiological mechanisms underlying BST, its assets and its pitfalls, are reviewed, particularly the physiological meaning of "dissociated shock." Further possibilities of the refinement of BST on the basis of physiological analysis of excitabilities involved are suggested.

BIBLIOGRAPHY

1. Alpers, B. J., and Hughes, J. Brain changes in electrically induced convulsions in humans. *J. Neuropath. and Exper. Neurol.*, **1**: 173-180, April 1942.
2. Alpers, B. J., and Hughes, J. Changes in brain after electrically induced convulsions in cats. *Arch. Neurol. and Psychiat.*, **47**: 385-398, March 1942.
3. Cerletti, U., and Bini, L. L'elettroshock. *Arch. gen. di neurol., psichiat. e psicoanal.*, **19**: 266-268, 1938.
4. Ebaugh, F. G., Barnacle, G. H., and Neuburger, K. T. Fatalities following electric convulsive therapy; report of two cases with autopsy. *Arch. Neurol. and Psychiat.*, **49**: 107-117, January 1943.
5. Friedman, E., and Wilcox, P. H. Electro-stimulated convulsive doses in intact humans by means of unidirectional currents. *J. Nerv. and Ment. Dis.*, **96**: 56-63, July 1942.
6. Gellhorn, E. *Autonomic regulations*, Interscience Publishers, N. Y., 1943.
7. Geoghegan, J. J. Personal correspondence, Ontario Hospital.
8. Globus, J. H., Van Harreveld, A., and Wiersma, C. A. G. The influence of electric current application on the structure of the brain of dogs. *J. Neuropath. and Exper. Neurol.*, **2**: 263-276, July 1943.
9. Gottesfeld, B. H., Baker, C. L., and Anglas-Quintana, P. An interpretive study of subjective response to electric shock therapy. *Dig. Neurol. and Psychiat., Inst. Living*, **14**: 642-648, December 1946.

⁹ It may well be that a "three-electrode" technique which we recently suggested for electro-narcosis may find its application in electroshock. With this technique the initial convulsion is elicited through vertex-temporal electrodes while the "maintenance stimulation" is applied through bitemporal leads.

10. Gottesfeld, B. H., Lesse, S. M., and Herskovitz, H. Studies in subconvulsive electric shock therapy, effect of varied electrode application. *J. Nerv. and Ment. Dis.*, **99**: 56-64, January 1944.
11. Heath, R. G., and Norman, E. C. Electroshock therapy by stimulation of discrete cortical sites with small electrodes. *Proc. Soc. Exp. Biol. and Med.*, **63**: 496-502, December 1946.
12. Ivanov-Smolenski, A. F. Combined therapy in schizophrenia. *Am. Rev. Soviet Med.*, **4**: 54-58, October 1946.
13. Kalinowsky, L. B., and Hoch, P. H. Shock Treatments and Other Somatic Procedures in Psychiatry. Grune & Stratton, N. Y., 1946.
14. Lapique, L. *L'Excitabilité en fonction du Temps*. Presses universitaires de France, Paris, 1926.
15. Levy, N. A., Serota, H. M., and Grinker, R. R. Disturbances in brain function following convulsive shock therapy; electroencephalographic and clinical studies. *Arch. Neurol. and Psychiat.*, **47**: 1009-1029, June 1942.
16. Liberson, W. T. Problem of sleep and mental disorders. *Digest Neur. and Psychiat.*, *Inst. Living*, February 1945.
17. Liberson, W. T. Time factors in electric convulsive therapy. *Yale J. Biol. and Med.*, **17**: 571-578, March 1945.
18. Liberson, W. T. Study of word association processes; reactions to "average emotional" and "average neutral" words in normal and abnormal populations; effect of electric convulsive therapy. *Dig. Neurol. and Psychiat.*, *Inst. Living*, **13**: 671-680, December 1945.
19. Liberson, W. T. Physiological basis of electric convulsive therapy. *Conn. State M. J.*, **10**: 754-756, September 1946.
20. Liberson, W. T. Some technical observations concerning brief stimulus therapy. *Dig. Neurol. and Psychiat.*, **15**: 72-78, February 1947.
21. Liberson, W. T., and Wilcox, P. H. Electric convulsive therapy: comparison of "brief stimuli technique" with Friedman-Wilcox-Reiter technique. *Dig. Neurol. and Psychiat.*, **8**: 292-302, May 1945.
22. Lloyd, David. Principles of nervous and muscular activity, in Howell's textbook of physiology. W. B. Saunders Co., Phila., 1946.
23. Masserman, J. H., and Jacques, M. D. The effects of cerebral electroshock on experimental neurosis. May 1946, *Am. Psychiat. Assoc. meeting*, Chicago.
24. Neuburger, K. T., Whitehead, R. W., Rutledge, E. K., and Ebaugh, F. G. Electric shock, pathologic changes in brains of dogs given repeated shocks. *Am. J. M. Sc.*, **204**: 381-387, September 1942.
25. Offner, F. Stimulation with minimum power. *J. of Neurophysiol.*, **9**: 387-390, September 1946.
26. Reitmann, F., and Frazer, R. A clinical study of the effects of short periods of severe anoxia with special reference to the mechanism of action of cardiazol "shock." *J. Neurol. and Psychiat.*, **2**: 125-136, 1939.
27. Riser, Gayral and Pigassou. *L'épilepsie sans cortex*. *Bull. Aca. de med. Paris*, **129**: 257-258, April 1945.
28. Rosenblueth, A., and Cannon, W. B. Cortical responses to electric stimulation. *Am. J. Physiol.*, **135**: 690-741, February 1942.
29. Scherer, I. W. Personal Communication.
30. Sillman, L. R., and Terrence, C. F. Analysis of shock therapy in schizophrenia on the basis of nitrogen inhalation series. *Psychiat. Quart.*, **17**: 241-245, April 1943.
31. Walter, W. Grey. Therapy by electrically induced convulsions. *Brit. J. Phys. Med.*, **3**: 146-149, August 1940.
32. Wilcox, P. H. Brain facilitation not brain destruction the aim in electroshock therapy. *Dis. Nerv. Syst.*, **7**: 201-204, July 1946.
33. Wortis, J. Physiological treatment of psychoses. *Am. J. Psychiat.*, **103**: 538-542, January 1947.
34. Wyss, O. A. M. Condenser discharge stimulation for physiological purposes. *Science*, **85**: 431-432, April 1937.
35. Wyss, O. A. M., and Obrador, A. Adequate shape and rate of stimuli in electrical stimulation of cerebral motor cortex. *Am. J. Physiol.*, **120**: 42-51, September 1937.

SIGNIFICANCE OF CHANGES IN ELECTROENCEPHALOGRAM WHICH RESULT FROM SHOCK THERAPY¹

MARGARET A. KENNARD, M. D., AND M. DORRIT WILLNER

The increasing use of electric shock therapy has indicated that such treatments may be effective in certain psychiatric conditions. Nevertheless there is still much resistance to this procedure based largely on the fact that it is entirely empirical and that the induction of a convulsive seizure on this, or any other basis, is probably a severe insult to the living organism. Any information which can be added to the knowledge of the physiological mechanisms involved is therefore of importance.

Since the electroencephalogram (EEG) is an objective record of one type of activity within the central nervous system, and since it is markedly changed as a result of shock therapy (9, 10), many investigations have attempted to correlate the EEG changes with various clinical or physiological data (12, 15, 17, 18). All observers have agreed on certain facts.

1. Shock therapy, whether insulin, metrazol, or electric, produces convulsions which alter the EEG at the time of the convulsion in exactly the same way as does any other type of epileptic seizure.

2. Abnormal cortical potentials appear after the seizure which have many of the characteristics of interseizure records of epileptics. These changes are transient, lasting weeks or months.

3. The degree of distortion of the EEG is related to the time at which the record is taken after the seizure, to the number of treatments, and to the interval between treatments.

4. Changes have not been found to be related consistently to clinical diagnosis, severity of clinical disorder, degree of clinical recovery, or degree of postshock mental confusion, although all of these factors have been considered by some authors in relation to EEG.

In the present investigation many of the above observations have been confirmed and

various other factors have been noted which appear significant.

METHOD

A series of EEGs has been made on each patient before the inception of shock therapy and at stated intervals during and after the series of treatments. After an initial period of observation on a few patients, it was decided to make records at the following times: preshock and on the days following the first, the sixth and the last shock. Follow-up records several months later were made in a few instances.

Diagnoses and need for treatment were determined by the clinical staff, and the number of treatments was limited by them according to the reaction of the patient. Treatments were given 3 times weekly, in the morning. The EEG records were made on the afternoon of the day following the treatment, approximately 36 hours after the last convulsion. Alternating current was used, the dose being sufficient to produce a grand mal seizure.

Clinical data were obtained from the clinical records. After consideration it was decided that correlation of EEG type with diagnostic details was not possible because of the fragmentary character of the clinical information, gathered in the usual hospital fashion by different observers and in different ways. However, severity and duration of clinical disturbance were estimated from the history and performance of the patient. Psychometric tests were made on most of these patients and correlation between the EEG and psychological data is now being made for subsequent publication.

EEG records were taken on a Grass 6-channel electroencephalograph. Records were interpreted in the usual way by visual comparison of the rate, amplitude, and general characteristics of the pattern. At the close of the study all records were restudied and evaluated for comparative changes resulting from treatment.

¹ From the Department of Psychiatry, New York University College of Medicine. Aided by a grant from the New York Foundation.

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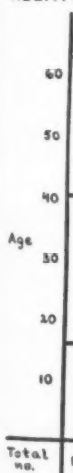


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DATA

In all, 201 records of 58 patients have been inspected and classified according to the type of preshock record of each individual. In this classification, the usual grouping of "normal" and "abnormal" preshock records was made and each group was then subdivided into three. The subdivisions were those which appeared obvious when the entire series was reviewed. The *normal* records were thus divided into 3 types: (1) those with well-organized pattern, largely alpha activity; (2) those with moderately well-organized pattern with moderate degree

Two-thirds of these were of the paroxysmal fast and slow type of abnormal records which are those most often seen in children with behavior disorders. The remaining third of this group were normal records.

The second group was from 16 patients between the ages of 17 and 40. In this group only 5 of its records were abnormal, the remaining 11 being normal records, which usually contained good alpha activity.

The third and largest age group, of 30 patients between the ages of 41 and 61, had EEG characteristics which differed from both the other groups in the degree and

RELATION OF PRESOCK EEG TO AGE

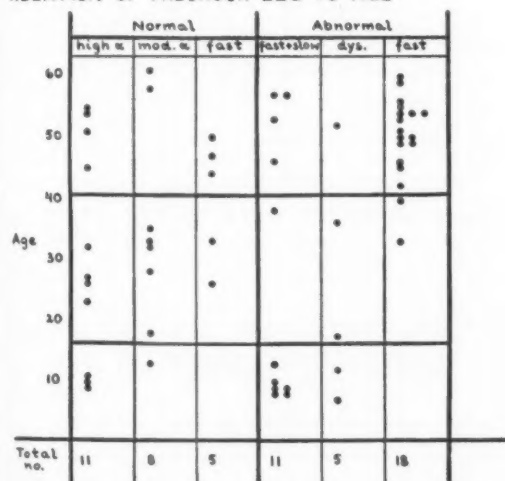


FIG. 1.—Preshock EEGs, showing normal and abnormal distribution according to age.

of regularity and moderate alpha; and (3) those with fast activity predominating. The *abnormal* records were separated into the following: (1) those with moderate dysrhythmia; (2) those with an abnormal amount of fast activity; and (3) those with a paroxysmal fast and slow activity. These 6 groups appear on the charts and will be adhered to throughout the paper.

Relation of Preshock Record to Age of Patient.—The relation of the type of preshock record to the age of the patient was at once apparent (Fig. 1). Of these 58 patients there are 3 age groups with different EEG characteristics.

The records of the 12 patients between the ages of 7 and 13 comprised one group.

RELATION OF PRESOCK EEG TO CLINICAL DIAGNOSIS

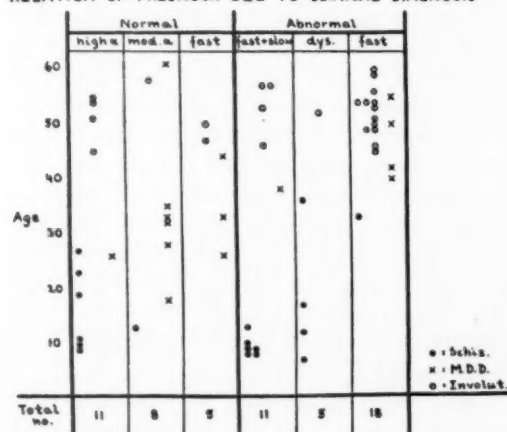


FIG. 2.—Preshock EEGs showing that normal and abnormal distribution is related to age, but not to clinical diagnosis of schizophrenia, manic-depressive, depressed or involutional depression.

character of the fast activity present. Seventy percent of these records were considered abnormal.

Relation of Preshock Records to Clinical Diagnosis.—Fig. 2 shows 3 diagnostic categories—schizophrenics, manic-depressives (depressed), and involutional depressions in relation to age and EEG characteristics. The youngest group of patients was entirely schizophrenic, the medium-aged group was largely manic-depressives, and the oldest group that of the involutional disorders. Because age and characteristics of EEG are correlated, as discussed above, there is also correlation between clinical diagnosis and EEG character. But Fig. 2 shows that the distribution of diagnostic entities *within an*

age group is fairly generalized and hence, when age is eliminated, that there is little correlation between diagnosis and EEG category. Comparison of Figs. 1 and 2 thus shows that grouping of EEG types occurs according to age rather than to clinical diagnosis.

An attempt was made to rate the severity and duration of the clinical disturbance. For this, only the oldest group, ages 41-61, was used as neither of the other groups was large enough to subdivide and the whole unit of 58 patients was not clinically homogeneous. Although clinical data were difficult to appraise there were 10 of these 30 patients whose clinical condition was considered *serious* as compared to 20 with *moderately severe* disturbances at the time of admission. All the seriously disturbed patients had grossly abnormal preshock records, whereas, in the group with moderate clinical disturbances, there were 9 with normal records. Duration of illness also was positively correlated with abnormal preshock records. There were 13 patients with illnesses of long duration. Eleven of these had abnormal records. The 2 normal records were both from patients aged 44 and 45 who were relatively young in the group.

There were 10 patients who had had previous shock treatments. All had been treated more than 6 months before the present hospital admission. There had been many sorts and intensities of treatment. Five of these 10 patients had abnormal preshock records—4 with fast activity, 1 with dysrhythmia. All were over 45 years of age. Of the 5 with normal records, 4 were under 33 years; the remaining patient was 51. Again, age, rather than other factors, seemed to relate to the incidence of abnormality in EEGs.

Postshock Changes in EEG.—The records taken at given intervals following shock treatment were assessed as to the amount of change which appeared. Ratings of either *slight*, *moderate*, or *marked* change are charted in Figs. 3 and 4.

Changes After First Shock.—Following the first shock treatment the changes are relatively slight. They usually show fast activity not previously present; a slight slowing of the alpha rate; and some increased irregularity of wave forms. Amplitude may

become slightly higher especially in the records of the younger patients. One or several of these changes may appear.

In Fig. 3 the age and type of preshock record are charted in relation to the amount

CHANGES IN EEG AFTER 1 SHOCK TREATMENT

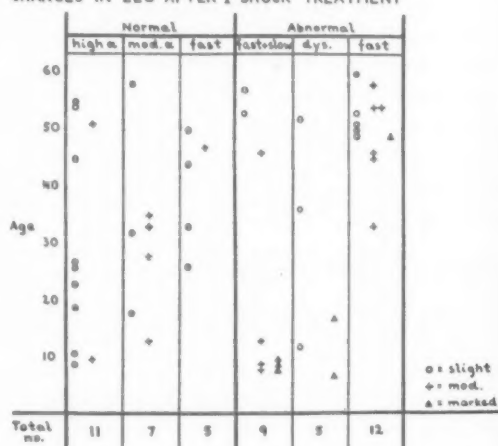


FIG. 3.—Amount of change in EEG following first shock. Distribution of normal and abnormal is according to preshock classification.

CHANGES IN EEG AFTER 6 SHOCK TREATMENTS

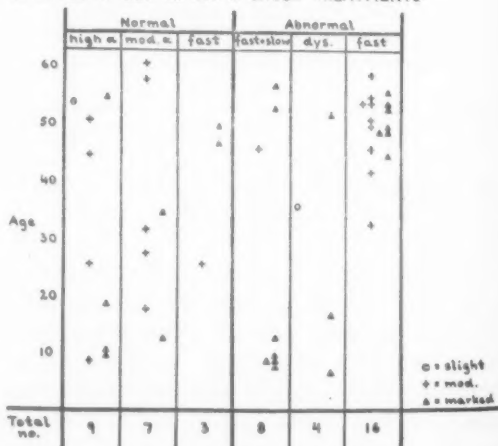


FIG. 4.—Amount of change in EEG after sixth shock. Marked changes appear in cases which had abnormal preshock cases.

of change produced by the first shock treatment. It can be seen that there is direct correlation between the two. Of the 23 normal preshock records, only 23 have moderate changes and none marked changes. Of the 27 abnormal preshock records, 10 showed moderate and 6 marked changes. Of the

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last, 4 out of 6 patients belonged to the youngest age group, while moderate changes occurred in either the youngest or oldest groups.

Changes After the Sixth Shock.—By the sixth shock, at the end of the second week of treatment, definite changes in EEG were present in every record (Fig. 4). Fast and slow activity appeared in all regions although in some instances it was most marked in the frontal areas. Irregularities of pattern were obvious and paroxysmal bursts resembling those seen in epileptics appeared in some records. Of the 49 patients examined at this time, 25 had records showing marked changes. Eight of these patients had had normal, and 17 abnormal preshock records. Most marked changes appeared in the group of children who had had paroxysmal preshock records and in those patients over 40 who had shown fast activity.

Late Postshock Records.—There were 43 records which were taken during the course of treatment at later dates, varying from the 8th to the 22nd treatment. No statistical evaluation of these records was possible, but it was clear from study of the series that the EEG continued to change following successive treatments until eventually a slow irregular pattern of extremely high voltage appeared. By the 10th treatment this was often present in the younger individuals. It was seen much later in the older patients but this final stage was never reached in some of those with shorter courses of treatment.

In 16 cases, records were made weeks or months after cessation of treatment. There was a gradual but complete return to preshock patterns during the second or third postshock month, in most of these cases. During the first 3 to 6 weeks, however, abnormal wave forms were still present although the high voltage slow activity disappeared within a few days. This group was too small and varied to attempt any more careful correlation of results.

Reaction to Hyperventilation.—The response to hyperventilation was of interest as it was altered in many instances during the treatment. These cases showed a reduction in reaction to hyperventilation after the 1st or 6th treatment. This was sometimes the first observable change. However, there were some cases in which no such alteration

in degree of reaction was noted. Those individuals who had the greatest reaction to hyperventilation in their preshock records were the children. It is well known that this is so and that it is merely one manifestation of the more mobile and reactive cortex of the young individuals. Therefore, the reduction in reactivity which occurred during shock was most obvious in this group. But records of individuals in other age groups which had shown great reactivity to hyperventilation in the preshock state were also altered in wave form by the shock treatment.

Final consideration of the entire series left the impression that those records which were labile, as shown by hyperventilation, or by dysrhythmic variations in pattern and form, especially those which contained true paroxysmal activity, were those most severely affected by the treatment.

DISCUSSION

In this group of 58 patients receiving shock therapy the character of the preshock record has been found to be related to the age of the patient (Fig. 1). A high incidence of abnormal records is present in the whole group of psychiatric patients as has been described by Greenblatt previously (3). Furthermore the character of the abnormality is directly related to age. In the younger patients a tendency to a paroxysmal fast and slow activity appeared such as has been previously described for children with behavior disorders (7, 8, 13). The group above 40 years of age showed an unusual amount of fast activity, as has been seen also by Finley (2) and by Hoagland, Malamud, Kaufman, and Pincus (6), who state that fast activity is present to unusual degree in patients with depression. The latter authors also state that fast activity is greatly altered by shock as it has been in the present series.

The character of the EEG did not seem to relate to the clinical diagnosis except insofar as these diagnoses were differentiated by age. But the severity of the clinical disorder and its duration probably were indicated by the type of preshock EEG.

The degree of change in EEG induced by the shock was directly related to the type of preshock record. Those individuals who had abnormal preshock records had greater alteration of record during shock than did

those who had originally normal records. This relation of severe postshock EEG changes to abnormality of preshock records has been stressed by several authors. Bagchi, Howell, and Schmale(1) and Pacella, Barrera, and Kalinowsky(15) found that patients with "epileptoid" preshock records were apt to show greatest EEG changes following the procedure. Pacella and Barrera (17) report that 2 patients out of 500 developed clinical seizures after shock therapy although they had never had previous seizures. Both had abnormal preshock records.

The value of the EEG in diagnosis and prognosis for those individuals who are treated by shock seems thus to be limited but clear. It must be related primarily to the character of the preshock record rather than to the effect on EEG of the treatment. A severely abnormal EEG which, preceding shock, contains either fast activity or paroxysmal patterns should be considered as diagnostically significant as correlated with the clinical picture of a severe and longstanding disorder. Since records from such individuals show the most extreme changes after shock the possibility of postshock epilepsy should be considered.

Repeated seizures in an epileptic are known to cause some type of deterioration in the patient, and Lennox has shown (11) that in individuals who have a tendency to epilepsy through familial inheritance, any one of a number of additional factors—trauma, fever, metabolic changes—may induce a clinical seizure. Electric shock would be such a contributing factor. The changes would be reflected in the EEG.

These data are also of interest in relation to physiological and psychological processes which underlie the clinical syndromes in psychiatric disorders. Since, at present, the EEG is the one objective means of recording cerebral cortical activity, the degree of sensitivity or reactivity to external stimuli of the process recorded must be important. Add to this the suggestive evidence that anxiety (8), aggression(4, 5), and like factors affect cortical potentials, particularly in epileptic(11) and behavior disorders(8), the EEG acquires added importance as a means of differentiation of structural psychological characteristics of the individual.

CONCLUSIONS

1. In a series of 58 patients receiving shock therapy the character of the preshock EEG record was found to be directly related to age and to severity of clinical disorder.
2. There was an unusually high incidence of abnormal records in this series.
3. The degree of change in EEG which resulted from shock therapy was related to the type of preshock record. Those records which were abnormal, fast or paroxysmal preceding shock were those which changed most during shock therapy.
4. It is therefore probable that the preshock record is of diagnostic and prognostic importance as related to treatment of psychotic patients by electric shock.

BIBLIOGRAPHY

1. Bagchi, B. K., Howell, R. W., and Schmale, H. T. The electroencephalographic and clinical effects of electrically induced convulsions in the treatment of mental disorders. *Am. J. Psychiat.*, 102: 49-61, 1945.
2. Finley, K. H. On the occurrence of rapid frequency potential changes in the human electroencephalogram. *Am. J. Psychiat.*, 101: 194-200, 1944.
3. Greenblatt, M. Age and electroencephalographic abnormality in neuropsychiatric patients. *Am. J. Psychiat.*, 101: 82-90, 1944.
4. Hill, D. Cerebral dysrhythmia: Its significance in aggressive behaviour. *Proc. Roy. Soc. Med.*, 37: 317-328, 1944.
5. Hill, D. The relationship of electroencephalography to psychiatry. *J. Ment. Sci.*, 91: 281-289, 1945.
6. Hoagland, H., Malamud, W., Kaufman, I. C., and Pincus, G. Changes in the electroencephalogram and in the excretion of 17-ketosteroids accompanying electro-shock therapy of agitated depression. *Psychosom. Med.*, 8: 246-251, 1946.
7. Jasper, H. H., Solomon, P., and Bradley, C. Electroencephalographic analysis of behavior problem children. *Am. J. Psychiat.*, 95: 641-658, 1938.
8. Kennard, M. A. Significance of paroxysmal patterns in electroencephalograms of children without clinical epilepsy. *Research Assoc. Nerv. Ment. Dis.* (in press).
9. Knott, J. R., and Gottlieb, J. S. Changes in the electroencephalogram following insulin shock therapy: a quantitative study. *Arch. Neurol. Psychiat.*, 50: 535-537, 1943.
10. Knott, J. R., Gottlieb, J. S., Leet, H. H., and Hadley, H. D., Jr. Changes in the electroencephalogram following metrazol shock therapy: a quantitative study. *Arch. Neurol. Psychiat.*, 50: 529-535, 1943.
11. Lennox, W. G., Gibbs, E. L., and Gibbs, F. A. Inheritance of cerebral dysrhythmia and epilepsy. *Arch. Neurol. Psychiat.*, 44: 1155-1183, 1940.

12. Levy, N. A., Serota, H. M., and Grinker, R. R. Disturbance in brain function following convulsive shock therapy: electroencephalographic and clinical studies. *Arch. Neurol. Psychiat.*, **47**: 1009-1029, 1942.
13. Lindsley, D. B., and Cutts, K. K. Electroencephalograms of "constitutionally inferior" and behavior problem children. Comparison with those of normal children and adults. *Arch. Neurol. Psychiat.*, **44**: 1199-1212, 1940.
14. Pacella, B. L., and Barrera, S. E. Spontaneous convulsive shock therapy. *Amer. J. Psychiat.*, **101**: 783-788, 1945.
15. Pacella, B. L., Barrera, S. E., and Kalinowsky, L. Variations in electroencephalogram associated with electric shock therapy of patients with mental disorders. *Arch. Neurol. Psychiat.*, **47**: 367-384, 1942.
16. Proctor, L. D., and Goodwin, J. E. Clinical and electro-physiological observations following electroshock. *Am. J. Psychiat.*, **101**: 797-800, 1945.
17. Rosen, S. R., Secunda, L., and Finley, K. H. Conservative approach to use of shock therapy in mental illness, including study of electroencephalographic tracings before, during and after shock therapy. *Psychiat. Quart.*, **17**: 617-641, 1943.
18. Turner, W. J., Lowinger, L., and Huddleson, J. H. The correlation of pre-electroshock electroencephalogram and therapeutic result in schizophrenia. *Am. J. Psychiat.*, **102**: 299-300, 1945.

THE PROBLEM SOLDIER AND THE ARMY¹

JOHN M. CALDWELL, JR.,² WASHINGTON, D. C.

The problem soldier and the Army might be expressed as the problem of the soldier as he is enlisted or inducted, the problem of the soldier after he is in the Army, and the problem of the soldier being discharged from the Army. Much has been said of the soldier's difficulty in the Army, and something needs to be said of the Army's difficulties with the soldier.

The magnitude of the issue may be introduced with a bird's-eye-view of the over-all neuropsychiatric problem during the years 1942-45. There were 1,850,000 neuropsychiatric rejections for military service, 12% of all those examined and 38% of all rejections for all causes. One million soldiers were admitted to army hospitals for neuropsychiatric reasons, constituting 6 to 7% of all admissions. Over 545,000 were separated from the service for neuropsychiatric disorders and formed 49% of all discharges for either physical or mental defects. Psychopathic personality and mental deficiency together made up a large percentage of the neuropsychiatric defects, 54% of the rejections, 12% of the admissions, and 30% of the separations.

Incomplete statistics available to The Surgeon General for the years 1942-46 show over 168,000 administrative discharges for undesirable habits and traits of character, or inaptness, lack of adaptability, and enuresis. Of this 168,000, some 42,000 received a "not honorable" or "blue" discharge, and over 126,000 received honorable discharges. The percentage of those demonstrating undesirable habits or inaptness requiring separation decreased remarkably after VE and VJ Day, while medical discharges continued to increase temporarily. During 1944 there were 57,000 such separations; 45,000 in 1945; and 5,000 in the period January to September 1946. Medical discharges were roughly

200,000 in 1944; 300,000 in 1945; and 87,156 in 1946.

The 42,000 noted above as receiving "not honorable" or "blue" discharges were not all those separated from the service as undesirable. There were approximately 68,000 individuals so separated from the service other than by honorable or dishonorable discharge. About 10% were officers.

A word may be said about some kinds of separations or discharges from the service. Officers may be reclassified out of the service for various reasons. They may resign for the good of the service, usually in lieu of court-martial, because of lack of moral fiber (usually in the face of the enemy or a fear of flying), misconduct, inefficiency, drunkenness, or homosexuality. This type of separation is considered the equivalent of a dishonorable discharge. Under mitigating circumstances or for lesser offenses, the officer's resignation may be accepted "without specification as to character." This type of separation is considered the equivalent of "blue" or "not honorable" discharge. Enlisted men receive honorable or "white" discharges when discharged upon recommendation by a board of officers, for inaptness, lack of adaptability, or enuresis, but carrying a notation "not eligible for re-enlistment." "Blue" or "not honorable" discharges are awarded by boards of officers for habits and traits of character such as alcoholism, drug addiction, overt homosexuality, criminalism, antisocial personalities; for fraudulent enlistment; for being absent in the hands of civilian authorities, *i.e.*, civil courts; by reason of statute of limitations on desertion; after desertion or absence without leave and being physically unfit. A medical or an ordinary discharge may also be "blue" following action of a board of officers recommending that the discharge should be "blue" because of character defects.

SECRETARY OF WAR'S DISCHARGE REVIEW BOARD(I)

The large number of men discharged from the service by other than honorable separa-

¹ Read at the 103d annual meeting of The American Psychiatric Association, New York, N. Y., May 19-23, 1947.

² Colonel, Medical Corps, Chief, Neuropsychiatry Consultants Division, Office of The Surgeon General.

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tion led the Secretary of War to establish a board for the review of discharges and dismissals of former personnel of the Army other than by the sentence of a general court-martial. This board was created by Public Law 346, Act of June 22, 1944, and began functioning in October 1944. Two panels were established, one in Washington, D. C., and the other in St. Louis, Missouri. Each panel consisted of 5 officers, white and colored, Reserve, National Guard, Army of the United States and/or Regular Army. The panels received applications by or for the individual concerned, who might appear, be represented by counsel, or base the appeal on the record with new facts submitted. In addition, the panels might review suitable separations on their own motion.

Of the 68,000 discharged, under other than honorable conditions, a little over 11,000 have formally applied for review, and 35,000 more have been automatically screened for likely cases for review and 2,700 (7%) have been so selected. Of this latter group, 1,900 cases have been formally reviewed and changes recommended in 68%. The process of automatic screening will continue until all have been reviewed.

Over 13,000 cases have been acted upon to date(2). Among these are 686 dating from before World War I to the beginning of World War II. Changes were made to honorable discharge in 33.1%, to a general discharge in 1.5%, modified in 2.3%, and unchanged in 63%. Modification was made for officers in such changes as from "resignation for the good of the service" to "without specification as to character," or changes in reclassification separations. For enlisted men, changes were made from desertion and physical unfitness to AWOL and physical unfitness, or from ineligible for reenlistment to eligible for reenlistment.

Chances for modification seemed to be improved when the offense was inefficiency or enuresis, associated with alleged disability or fraud, and diminished when the offense was homosexuality, alcoholism, drug addiction, misconduct, lack of moral fibre, or lack of amenability to discipline.

Applications for review have, in part, been submitted by individuals desiring to remove the stigma of an undesirable discharge or to

secure or ensure benefits from the Veterans Administration, which decides individually in "not honorable" discharges if benefits and compensation should be given, based on the merits of each particular case. In other words, the individual not honorably discharged is deemed not eligible for benefits until proved so; with an honorable discharge for disability, an individual is considered eligible for benefits until it is proved that he is not.

To ensure greater uniformity and ease of interpretation, Army Regulations are being modified to permit (1) honorable discharges, (2) general discharges (inaptness, lack of adaptability, or enuresis), (3) undesirable (habits and traits of character), (4) bad conduct (by sentence of a special court), and (5) dishonorable (by sentence of a general court). All discharges will be white except by sentence of a court when the form will be colored yellow.

GENERAL PRISONERS

When a violation of the Articles of War has occurred, the soldier and the offense are investigated by an officer, usually the soldier's commanding officer. If the offense is minor, company punishment may be inflicted, consisting of reprimand, restriction, extra duty, etc., up to a period of 7 days. The soldier may appeal for trial by a court. If the offense is more serious, a statement of charges is preferred by an officer having knowledge of the facts. The case may be referred to a summary court, consisting of one officer. Maximum punishment is confinement at hard labor for one month and loss of $\frac{2}{3}$ pay, less certain allotments for one month. The soldier may appeal. More serious offenses are dealt with by special courts-martial of not less than 3 officers, prosecution and defense attorneys, and due notice to the accused before trial. Maximum sentence by special court is 6 months at hard labor and forfeiture of $\frac{2}{3}$ pay for a like period. The most serious offenses are investigated by a disinterested officer, and may be referred for trial by an authorized appointing authority to a general court-martial. A general court consists of not less than 5 officers, a law member, and the usual attorneys; the maximum sentence is death. All

sentences, by any court, are reviewed by the appointing authority and by various echelons of command up to and including the War Department. Clemency may be exercised by the appointing authority or any of his superiors. Appointing or reviewing authorities may affirm or mitigate punishment, but may not act to increase the punishment.

The Adjutant General's Office and its Correction Branch have been charged with the responsibility for all general prisoners and their reeducation, rehabilitation, and return to duty, if possible. From November 1940 to June 1946, there were 74,403 commitments to penal installations as the result of general courts-martial action. Of this number, 37,223 have been restored to duty, 12,372 dishonorably discharged, 1,076 paroled, 477 given "blue" or "white" discharges, 101 have died from miscellaneous natural causes, and 791 otherwise released, leaving 22,363 for ultimate disposition(3). Of the 37,223 restored to duty, figures are available on 23,121 restored in the Continental United States. The others were restored overseas. There were 17,450 restored to duty from rehabilitation centers and 5,671 from disciplinary barracks. There were 14.4% recidivists from rehabilitation centers and 3.5% from disciplinary barracks, an average percent recidivism of 11.7. Blue and white discharges were mainly for medical reasons and 136 medical discharges were included with the 791 listed as "other releases." All the foregoing figures are as of 30 June 1946, by which time the postwar clemency program had been substantially completed.

As a matter of interest, there were 141 executions as of 29 December 1945, not included elsewhere in tabulations, 71 of which were executions for murder, 18 for murder and rape, 51 for rape, and 1 for repeated desertion in the face of the enemy.

Of the various crimes committed by 24,289 general prisoners, military offenses accounted for 72.6% of total crimes and civil crimes 27.4%(4). Misbehavior before the enemy was considered the most serious military offense, with a median sentence of 17.2 years; rape and murder the most serious civil offenses, with a median sentence of life. The range of sentences for all offenses was from less than 2 years to 49 years or life, except

burglary with a maximum sentence of 20 years, and rape with a minimum sentence of 5 years.

Of all general prisoners, 69.9% had had at least one previous court-martial prior to current sentence and offense, and some had as many as 9 or more; 30.1% of all general prisoners had had at least one known prior civil commitment, and if all previous civil convictions were known the percentage would undoubtedly be higher.

The most common offenses by far were AWOL with 8,116, desertion with 5,591, larceny with 2,116, discreditable conduct towards superior officers 1,965, violation of arrest or confinement 1,214, and assault with 942.

CLEMENCY

In June 1945 a Clemency Board(5), of which Owen J. Roberts became chairman, was authorized by the Secretary of War. The primary objective of this Board was to correct injustices and inconsistencies resulting from courts-martial sentences, to obtain uniformity in sentences for similar offenses and offenders, to enable qualified and deserving prisoners to be returned to duty with an opportunity to earn an honorable discharge; and, secondly, to use Civil Court standards of punishment as a guide in determining appropriate sentences for offenses commonly recognized as crimes by Civil Courts. In operation, several panels of boards reviewed cases, with reports to the superior Central Board and the Under Secretary of War.

Of 22,196 cases acted on by the clemency boards from September 1945 to June 1946, some 84% were granted clemency. Clemency consisted mainly of reduction in sentence, based on sentences in civilian courts for comparable crimes.

Formal clemency recommendations are initiated by local boards in the penal institutions. In each disciplinary barracks there is a psychiatry and sociology division, headed by a psychiatrist, and, in collaboration with psychologists and social workers, studies of prisoners are made with a view to consideration for clemency, parole, classification, and assignment. Cases are studied periodically and reported at least yearly, for further recommendation as to clemency. Recommenda-

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tions are referred to the Neuropsychiatry Consultants Division for opinion prior to action by the Clemency Board in the War Department, where there is any question as to the prisoner's mental responsibility at the time of offense, or a current mental illness.

ARMY GENERAL CLASSIFICATION TEST

The Army General Classification Test is not strictly speaking a test of intelligence as such, but a test of the ability to acquire new knowledge. The lower the Army General Classification Test score, the more the relative increase in general prisoners over the general army average; 37% of the Army

PSYCHIATRIC DIAGNOSIS

A review of psychiatric diagnoses(6), by type of offense, of 35,048 general prisoners in confinement at some time during the calendar years 1945 and 1946 is shown in Table 1. No disease was found in 44.9%; the diagnosis was deferred or some form of psychiatric diagnosis was made in 55.1%. The most common psychiatric diagnosis was in the character and behavior disorder group, 34.8% of all prisoners, followed by disorders of intelligence in 6.9%. Diagnoses following conviction for a military offense were 39.1% for character and behavior disorders,

TABLE 1

PSYCHIATRIC DIAGNOSIS, BY TYPE OF OFFENSE, OF 35,048 GENERAL PRISONERS IN CONFINEMENT AT REHABILITATION CENTERS, DISCIPLINARY BARRACKS, AND FEDERAL INSTITUTIONS AT SOME TIME DURING CALENDAR YEARS 1945 AND 1946

Psychiatric Diagnosis	Total		Military offenses		Civil offenses	
	Number	Per cent	Number	Per cent	Number	Per cent
Transient personality reactions.....	1,022	2.9	654	2.8	368	3.2
Psychoneurotic disorders	559	1.6	442	1.9	117	1.0
Character and behavior disorders.....	12,205	34.8	9,163	39.1	3,042	26.0
a. Pathological personality.....	(8,083)	(23.0)	(5,991)	(25.5)	(2,092)	(17.9)
b. Immaturity reactions	(2,029)	(5.8)	(1,548)	(6.6)	(481)	(4.1)
c. Addiction to alcohol.....	(1,928)	(5.5)	(1,494)	(6.4)	(434)	(3.7)
d. Addiction to drugs.....	(165)	(0.5)	(130)	(0.6)	(35)	(0.3)
Disorders of intelligence.....	2,410	6.9	1,783	7.6	627	5.4
Psychosis	129	0.4	97	0.4	32	0.3
Other	1,792	5.1	1,194	5.1	598	5.2
Diagnosis deferred	1,190	3.4	944	4.0	246	2.1
Total	19,307	55.1	14,227	60.9	5,030	43.2
No disease	15,741	44.9	9,129	39.1	6,612	56.8
Total including "No disease".....	35,048	100.0	23,406	100.0	11,642	100.0

rated above average on the AGCT score and contained 17% of the general prisoners; 32% of the Army rated below average with 52% of the general prisoners. As the Army General Classification Test score decreased, the greater became the ratio of military crimes to civil crimes, and the relatively more frequent became the crimes of assault, violation of arrest or confinement, and discreditable conduct toward a superior officer.

On 10 August 1946, War Department Circular 241 directed the discharge of soldiers with AGCT of less than 70 who showed lack of adaptability to the service and, on 14 February 1947, SGO Circular 23, quoting The Adjutant General's letter of 10 February 1947, prohibited the enlistment of men with an AGCT of less than 70.

7.6% for disorders of intelligence, and 39.1% for no disease. Diagnosis in civil offenses showed 26.0% for character and behavior disorders, 5.4% for disorders of intelligence, and 56.8% for no disease. Other diagnoses were in relatively low percentages.

MILITARY OFFENSES

The ratio of military offenses to civil offenses was approximately 2 to 1 for 35,000 prisoners, a ratio of 1.5 to 1 in the 15,000-man group of no disease, and a ratio of 2.8 to 1 for over 19,000 men diagnosed in various psychiatric categories. Thus, a man who commits a military offense is more likely to have diagnosable psychiatric disorder than one who commits a civil offense.

Valid statistical differences were found in relation to military offenses and diagnosis as follows: Individuals with transient personality reactions who had committed a crime were more likely than the average general prisoner to have gone AWOL; otherwise, the pattern of crime is similar to all other general prisoners with either a psychiatric diagnosis or no disease. Those prisoners with psychoneurotic disorders were more likely to have gone AWOL or to have shown discreditable conduct toward a superior officer and less likely to have deserted. Chronic alcoholics were more prone to have gone AWOL and less likely to have deserted. Drug addicts were more prone to have shown discreditable conduct toward superior officers and less likely to have gone AWOL. Prisoners with a major psychosis were prone to have shown discreditable conduct toward a superior officer and to have violated arrest or confinement and less likely to have gone AWOL or deserted.

CIVIL OFFENSES

General prisoners convicted of civil offenses show less variation from the general average crime pattern than those convicted of military crimes. However, certain valid statistical variances were found as follows: The psychoneurotic general prisoner was guilty of embezzlement or forgery relatively more often than of other crimes as compared with the average. Drug addicts who committed crimes tended toward assault and murder, the mentally deficient seem to have assaulted others and avoided forgery, the psychotic and/or prepsychotic were convicted of sodomy more frequently than the general average.

To keep partially abreast of the tremendous demands upon psychiatry during World War II, the diagnostic and treatment teams of psychiatrists, psychologists, and psychiatric workers were utilized in hospitals, training centers, disciplinary barracks, and other army installations. This skilled personnel has been largely lost. However, the team concept is being retained in a perhaps skeletonized form, pending the procurement of replacements and their training, both within the military service and at civilian institutions.

SUMMARY³

1. During World War II, neuropsychiatric disorders were the cause of rejections of 12% of all men examined for military service, the basis for 6 to 7% of total admissions to army hospitals, and the reason for 49% of all separations for mental or physical defects.

2. Over 126,000 men and women were separated administratively, with honorable discharges for inaptness, lack of adaptability, or enuresis.

3. Over 40,000 were separated for undesirable habits and traits of character with other than honorable discharges, and 25,000 more received similar administrative discharges for various reasons.

4. Some 74,000 officers and men were sentenced by a general court-martial to confinement and dishonorable discharge.

5. A War Department Review Board is currently considering all discharges other than honorable or dishonorable, with a view to changing, correcting, or modifying improper or inequitable discharges or dismissals.

6. A War Department Clemency Board is functioning to correct injustices and inconsistencies resulting from courts-martial sentences, and to enable qualified and deserving prisoners to be returned to duty.

7. Army Regulations are being modified to permit a greater variety and ease of administrative discharges, and courts-martial procedures are being changed and improved in the light of modern thought.

³ Later report: Statistics from the Adjutant General's Office on the movement of population in Disciplinary Barracks in the United States from November 1940 through February 1948 are as follows:

Admissions	46,325
Reductions in length of sentence.....	40,319
Restored to duty.....	7,604
Sentence expired	21,252
Paroled	4,543
Discharges other than dishonorable, including honorable, general, blue and undesirable discharges granted by the Clemency Board	734
Other releases	6,186
Confined at end of period.....	6,006

There was an average of 10.3% recidivism of restored general prisoners who again became general prisoners.

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BIBLIOGRAPHY

1. War Department Memo 400-5-3. September 1940. Secretary of War's Discharge Review Board.
2. Secretary of War's Discharge Review Board, Consolidated Report, Feb. 13, 1947.
3. Monthly Statistical Report for July 1946; General Prisoners in Confinement. The Adjutant General's Office, Correction Branch.
4. Statistical Study—February 1946, Correction Division, Adjutant General's Office, War Department.
5. W. D. Memo, 600-375-5. February 1947, Clemency for Military Prisoners.
6. Nomenclature and Method of Recording Diagnoses: Technical Medical Bulletin 203, War Department, October 19, 1945.

PSYCHOSES OCCURRING AMONG PSYCHOPATHIC PERSONALITIES IN ASSOCIATION WITH INELASTIC SITUATIONS OVERSEAS¹

HERBERT S. RIPLEY, M.D., AND STEWART WOLF, M.D.

New York, N. Y.

There are many reports concerning the psychopathic personality in the military services. The literature prior to 1941 has been well reviewed by Dunn(1); and more recently reports by Baganz(2), Blackman(3), Bullard(4), and Kaufman(5) have appeared. They have discussed chiefly the non-psychotic psychopath and have dealt with the difficulty of identifying him prior to induction, his reaction to military life, the question whether or not he can be utilized by the armed services, and his effect on the efficiency and morale of his organization. However, relatively little has been written about those psychopaths in the armed forces who develop psychoses, and it is therefore thought that the results of an investigation of such a group might be of interest.

The term psychopathic personality is used to designate a pattern of behavior in which some or all of the following characteristics are prominent: underdeveloped sense of responsibility, superficial love relationships, intense but labile and often inconsistent emotional reactions, impulsiveness, including difficulty in postponing satisfactions and disregard for consequences, plausibility, glibness, expansive ideas, impaired capacity properly to evaluate abilities, difficulty in accepting authority or restriction, failure to sustain and carry through undertakings and commitments, lying, stealing, polymorphous sexual relationships, alcoholism, and drug addiction. Among those who have studied the dynamics of the development of this complex, Diethelm(6) has noted insufficient maturing and disturbance of functions relating to the synthesis of the personality. Greenacre(7,8) has postulated that early insecurity has led to inadequate control of primi-

tive drives and failure to develop a sense of cause and effect. She found among the parents of psychopaths inadequate warmth and affection, inconsistency of attitudes, and values of performance based on appearances rather than on actual accomplishment.

Evidences of this personality pattern usually become manifest very early in life as indifference to affection or discipline, rebelliousness, and a tendency to run away from home. For this reason many have concluded that the disorder is constitutional or inborn. In support of this view some have used the recent evidence of characteristic alterations in brain waves that have been found by Simons and Diethelm(9), Silverman(10), and Knott and Gottlieb(11). The changes referred to have not been considered specific by Simon, O'Leary, and Ryan(12). Others have interpreted the facts as indicating that the reaction pattern of the psychopath is the organism's method of dealing with the denial of infantile satisfactions (13, 14, 15). Some (16, 17) suspect that most psychopaths should be regarded as psychotic. The frequent occurrence of gross psychotic symptoms among psychopaths who are restricted, as in prison(18) or in military service, has been recognized(2, 19, 20).

In civil life psychopaths are often able to make an adjustment by abruptly throwing over responsibilities that have become too onerous, or, by moving about a great deal, they have been able to change their environment. In the Army, on the other hand, and especially in isolated posts overseas where no passes or furloughs were given, this type of adaptation was not possible. In such a setting the frequent occurrence of psychoses among subjects with psychopathic personality was observed. The present communication is based on the study of 50 such cases occurring in the restricted environment of the combat zone on two islands (Goednough and Biak) near New Guinea, and one (Luzon) in the Philippine Archipelago. For

¹ Read at the 103d annual meeting of The American Psychiatric Association, New York, N. Y., May 19-23, 1947.

From the New York Hospital and the Departments of Psychiatry and Medicine, Cornell University Medical College, New York, N. Y.

comparison, 50 psychopaths without psychosis were selected from the same setting in an effort to detect significant differences that might have lead to decompensation in the former group. Individuals designated as psychopaths who were under observation primarily for homosexuality were not included.

GENERAL DATA

Fig. 1 indicates that the incidence of nail-biting and running away from home was approximately the same among patients with and without psychosis. However, in this small group the occurrence of enuresis, tem-

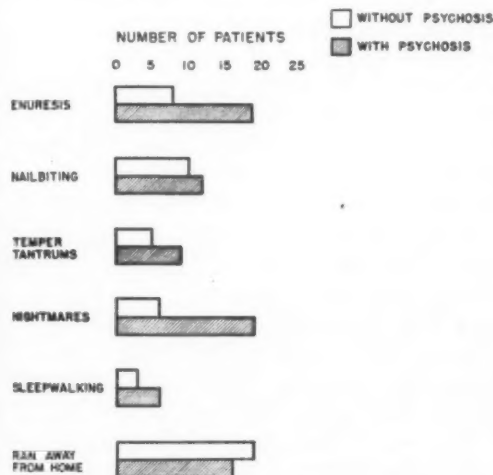


FIG. 1.—Comparison of incidence of various manifestations among psychopaths with and without psychosis.

per tantrums, nightmares, and sleepwalking was higher among those who developed psychosis. This suggests the possible relation of the occurrence of psychosis to the prior existence of relatively severe, unconsciously motivated behavior disturbances.

Fig. 2 compares data on the past history of the two groups. Alcoholism was common among those who did not develop psychosis. There was little difference in the amount of education, but both the scholastic record and the adjustment in school had been better in those who became psychotic.

Many of those who had had difficulty with the law were constant offenders or had served long terms in prison. Of those patients without psychosis, 13 had been ar-

rested for drunken and disorderly conduct, 8 for larceny, 2 for manslaughter, 2 for gambling, 2 for vagrancy, and 2 for assault with a deadly weapon. There also had been single arrests on charges of striking a policeman, bootlegging, keeping bad company, indecent exposure, rape, and homosexuality. Among those with psychoses there were fewer habitual offenders. Ten had been arrested for larceny, 7 for drunken and disorderly conduct, 3 for fighting, and 3 for gambling. There was one arrest each on charges of manslaughter, bigamy, vandalism,

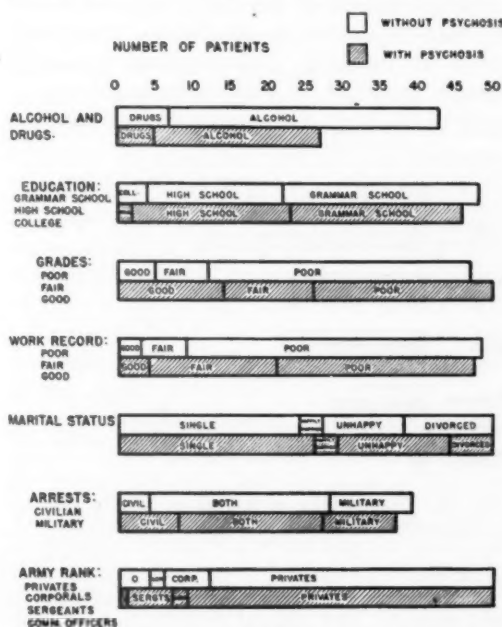


FIG. 2.—Comparison of incidence of events of personal history among psychopaths with and without psychosis.

and vagrancy. The same general pattern appears in the record of military arrests for both groups. This greater degree of criminality combined with the higher incidence of running away from home and alcoholism in those without psychosis suggests that overtly aggressive behavior previously had played a greater rôle in the personality adjustment than had the more unconscious reactions such as enuresis, nightmares, and sleepwalking which, as pointed out, were more frequent among those who developed psychosis.

The marital status is shown in Fig. 2. Most men in both groups had had hetero-

sexual relations, and 6 in each group gave a history of homosexual relations.

The family setting was characterized by frequency of quarrels, deaths of parents by violence, broken homes, poverty, chronic physical illness, alcoholism, and neurotic, psychopathic, and psychotic disorders. Fig. 3 indicates the frequency of broken or unhappy homes and the high incidence of illness in the family.

PSYCHOPATHOLOGY

The diagnosis of psychosis was made on the basis of defects in sensorium, disorganization of thinking, hallucinations or delusions in conjunction with other evidences of psychopathology. Of the psychotic reactions

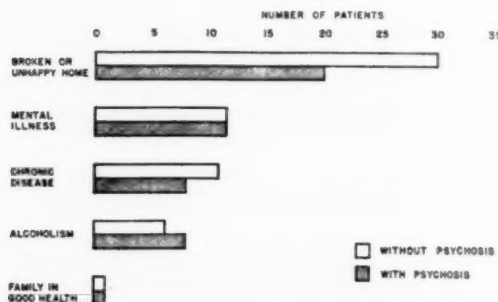


FIG. 3.—Comparison of events of family history among psychopaths with and without psychosis.

31 resembled schizophrenia, 12 depression, and 2 mania. The clinical picture in 5 did not conform to any of the standard nosologic types.

Suicidal preoccupations were present in 22 and in 10 instances suicidal attempts had been made. Four of the patients had cut their wrists, 2 had shot themselves, one had banged himself against walls and on the floor, and the remaining 3 had tried hanging, jumping from a cliff, and drowning, respectively. Among those who were not classified as psychotic some degree of depression was found in 10 and suicidal thoughts in 3. Two had made suicidal attempts; one by taking morphine and one by slashing his wrists and taking iodine.

In those with psychoses, homicidal preoccupations were elicited in 4 cases, and homicidal impulses exhibited in 2 cases. In

the nonpsychotic group only 2 patients spoke of homicidal preoccupations and one man had, on several occasions, shown homicidal behavior.

Thirty-four of the psychotic patients had paranoid delusions, 10 had somatic delusions, 4 had delusions of grandeur, and 3 had other delusions. Of those who had not developed psychosis 9 showed paranoid trends.

In the psychotic group, auditory hallucinations were present in 26 patients, and visual hallucinations in 16. Thirteen of these patients experienced both auditory and visual hallucinations. Six men heard their mothers' voices, and 3 of these also saw their mothers. The next most frequent hallucination was that of 4 who heard their names called. Three patients saw their wives and 2 of these also heard them. Three heard someone talking and one both saw and heard "people." Two saw fierce animals, and one also heard them. One heard his sweetheart's voice, and another both saw and heard her laugh. Two had visions of Japanese soldiers coming after them, and one of these also heard the Japanese. One man had both auditory and visual hallucinations of his grandfather, and one heard the voice of the man he had knifed and killed saying "I'll get you yet." One patient heard the voice of a woman who was actually a "pen pal" whom he had never met, but whom he thought he had impregnated. This woman berated him severely and called him obscene names. The voice of God told another to commit suicide, while still another heard his dead brother calling him. One patient saw and heard his sister, another heard his uncle's voice, and another had visions of automobile headlights coming at him. Finally, one patient had the sensation of bugs crawling over him.

Among other symptoms present in the psychotic group were excitement, impulsive behavior, psychomotor retardation, agitation, bizarre mannerisms, mutism, refusal to eat, difficulty in thinking, unreality feelings, panic, crying spells, poor judgment, and defective insight.

Twenty-four of these patients also gave a history indicating a previous mental illness. In 7 instances it appeared to have

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been a psychotic episode, and in 3 of these it had occurred while the patient was serving a term in prison. The other 17 had shown a variety of symptoms, chief of which were hysterical, hypochondriacal, or depressive in nature.

PRECIPITATING FACTORS

Twenty-four of the psychoses appeared to have been precipitated by inability to adjust to some phase of army routine. Feelings of frustration and resentment had been usually aroused by restrictions of freedom and movement and the rather rigid daily schedule of army life. Most of these men had been stationed in isolated posts. They were under continuous pressure of routine duties and, for various reasons, few furloughs or passes were granted. As a result, the troops had been deprived of the usual diversions to be found in a town or city. The Army made an attempt to remedy this situation by providing facilities for baseball and other athletics, for movies, clubs, occasional dances, and reading rooms. There was a beer ration for the men, and in many places there were juke boxes. But all these left something to be desired from the point of view of the patients in this study. The pleasures of the city, hard liquor, gambling, companionship of women, visits to prostitutes, the possibility of getting into a rousing fight or of a bit of thievery—all these were lacking. Instead, the men were confined for the most part to one small area, among the same people, and under the constant supervision of their superiors. Eight men especially mentioned their resentment at having always to take orders.

As can be seen in Fig. 2, the majority of the patients in both groups were privates. However, among the noncommissioned and commissioned officers there was mention of a dislike of responsibility. For example, 2 of the 6 sergeants in the psychotic group stated that they could not stand the responsibilities of their rank.

There was also considerable unfavorable reaction to being stationed anywhere outside the limits of the continental United States, which appeared to have begun almost immediately upon leaving the port of em-

barkation. There was additional resentment toward the unpleasant aspects of life in the tropics. This was especially true in the case of one man who had been stationed in the jungle for 2 years and for one year had had on his hands a persistent type of dermatitis commonly referred to by the troops as "jungle rot."

Although only 9 of the psychotic patients had been stationed in the front lines, 6 of these developed psychosis in the setting of active combat duty during the bloody Luzon campaign in the Philippines. Two began to show evidences of psychotic behavior shortly after learning of the deaths of their mothers and one after hearing that his brother had died in a German prison camp.

Three seemed chiefly influenced by the fact that they had received no mail for some months. Four of the patients had an overwhelming desire to go home. Two of the patients, while intoxicated, developed psychotic reactions which continued long after the alcohol could have exerted any effect. One man, whose case has been discussed in a previous report (21) developed a psychosis during 3 years of captivity in a Japanese prison camp.

Other factors which appeared to have been significant in precipitating a psychosis were the following: unfaithfulness or illness of a wife, concern about proposing to a friend's sweetheart, fear of contracting tropical disease, preoccupation with a man he had killed before entering the Army, arrest for sodomy, confinement in the stockade, and a quarrel with another soldier over a Philippine prostitute.

CASE STUDIES

In several cases, at the time of onset of the psychosis there was a suspicion of malingering. The psychopath who develops a psychosis is frequently under suspicion in regard to the authenticity of his symptoms because of moral judgments previously passed on him and the tendency to regard everything he does as reprehensible. In contrast, the occurrence of psychotic manifestations among soldiers who had earlier displayed conventional conformity to social standards were more likely to be regarded as bona fide.

A case which illustrated the possibility of a complicating malingering factor, as well as other features often seen among these patients, was that of a 23-year-old private.

CASE 1.—In childhood the patient wet the bed, bit his nails, and had nightmares and temper tantrums. He had been orphaned in infancy and was brought up by an aunt and uncle who forced him to leave school at the age of 12 and work on a farm. They thereupon appropriated all the money he made. He resented this greatly and at 17 ran away from home to join the Army. He drank a great deal and was promiscuous sexually but got into no serious trouble. After two years of service he married a serious-minded girl who, he felt, reformed him. They apparently lived happily together and had one child before the patient went overseas. He then resumed his drinking and carousing, and on one occasion during a brawl with several Negro soldiers he shot one of them. After his release from the stockade where he served one year for the crime, he was assigned to a station hospital in New Guinea where he worked as a psychiatric ward man. He was difficult to handle, resentful, and constantly in minor trouble. He said that he was worried about his wife who had written that she was ill. He was homesick and felt that he should have been sent home in the rotation system long ago. For several weeks before admission he was increasingly despondent, slept poorly, cried occasionally, and noted difficulty in concentration. He was unable to write letters home. On the night of admission he was drunk, noisy, destructive, and wildly combative. The following day he was markedly confused, continued tearful and depressed, expressed a strong desire to go home, and had visual and auditory hallucinations concerning his wife. His memory was defective and he was disoriented as to time.

It was apparent that this man was a thwarted psychopath but it was not clear whether he had become psychotic or was feigning psychosis. In view of the suspicion of malingering the patient was interviewed under sodium amytal, 0.5 gm., intravenously. Although there was little evidence of intoxicating effect while the injection was being given he bawled and cried "I want my baby," and "I'm a good boy." He said that the injection cleared his mind as marijuana had done years before. "I'll blow my top and I'll get home if I have to cut my leg off." Following the interview he reverted to his former state and during the subsequent 3 weeks of observation he wandered about his room in a daze, unable to recognize people and saying "I'm a good boy."

The problem of the evaluation of the patient became further complicated when, 4 days later, his tentmate, a 25-year-old private, in a state of acute excitement turned over several tables in the officer's mess at supper time. His story is summarized below.

CASE 2.—This patient also had a record of failure to conform to social standards. He ran away from

home for a few days at age of 15, and was jailed twice for disturbing the peace. He left school at the age of 20 when he was in the 11th grade. After induction his childhood sweetheart followed him from camp to camp. He married her but, while he said that he was faithful to her, marriage seemed to encroach unduly upon his freedom. He refused to support her and 7 months later she left him. The marriage was annulled but the girl continued to write the patient daily. He was relieved at not being tied down. He got on fairly well in the Army. Shortly before going overseas he suddenly decided that he would like to be married again and wrote of his intentions to his former wife. She replied that she was still devoted to him but preferred to wait until after the war to remarry. Since he was sent overseas with the matter still unsettled he considered that the Army had grossly mistreated him. The girl's letters became progressively cooler and finally stopped. The patient became despondent, sleepless, tense, and seclusive. He began to blame himself for his difficulties. He had insisted that his wife become a Catholic and then despite her strong desire for a baby he used contraceptives because he didn't want to be tied down with children. "God is punishing me because I did wrong." His increasing depressive preoccupations and agitation culminated in the incident in which he tipped over the officer's tables. After admission to the hospital he was unable to recall this happening. He was tense, agitated, and tearful at times. His tone of voice was dismal and ominous. "I feel pretty sad all the time. I don't know if I'll ever get a chance to make up for the mistakes I've made." Under sodium amytal there was little change in the patient's manner or the content of his talk. He received a letter from his former wife who had finally decided to accept his offer of remarriage, but he did not seem cheered by this news. He continued in a self-accusatory vein, saying that the Lord would punish him for breaking faith. After that, his behavior became bizarre. He knelt in his room praying constantly in the oriental posture of prayer.

COMMENT

These two tentmates displayed the typical background of the psychopath. They had been denied something they desired very strongly. In both, this frustration seemed to produce agitation, restlessness, and paranoid ideas. One threatened to "blow his top," the other began to blame himself. They were both admitted in a state of wild excitement and, following admission to the hospital, their behavior in the ward was somewhat similar. They paced and growled like wounded bulls. The first patient, however, whatever the evidence for psychosis, displayed also evidence of dissembling. The second patient presented a more straightforward picture of an agitated depression.

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DISCUSSION

In the restricted environment of tropical Pacific islands, the necessity of conforming to a rigid pattern of behavior without compensatory social outlets resulted in feelings of marked frustration and a sense of being trapped which appeared to be of importance in precipitating psychotic reactions in soldiers with psychopathic personalities. Under these circumstances the psychopath appeared more susceptible than the average soldier to the development of both neurotic and psychotic symptoms. The psychopath seemed to be handicapped by his inability to develop close interpersonal relationships which helped others to maintain good morale and personality adjustment under adverse conditions. In the peacetime Army, on the other hand, the relatively mild psychopath often finds that the routine and supervision is well suited to his need for care, protection, and simplification of life. However, he adjusts less well to war service with its dangers, discomforts, and demand for assuming greater initiative and responsibility. The severe psychopath has been noted repeatedly to fail to adjust to the military services (1, 2, 23-31). The lower incidence of psychosis among individuals stationed in the United States may be related to the greater opportunities for expression of aggressive behavior provided by the manifold diversions of the life. These may serve to relieve tension and thus lessen the incidence of severe psychopathologic reactions.

It is of interest that the mild psychopaths who were captives of the Japanese for 3 years seldom developed psychoses (21). This may be accounted for by the minimal need to assume any responsibility. The circumstances precluded any chance for escape either to an improved environmental situation or through the development of severe psychopathologic manifestations which might remove them from the setting since return to the United States for disabled soldiers was impossible. As mentioned before, among those psychopaths who did develop psychosis the desire to be relieved of onerous duties and to return to the United States was frequently expressed. No such gain

was possible for the prisoner of war. Moreover, the adjustment of the psychopath to prison camp may have been aided by the fact that survival was often assured by stealing food. Thus the defective conscience of the psychopath became an asset.

The overseas environmental setting was more analogous to the confinement of the civilian prison where psychopaths frequently develop similar psychotic reactions. The facility with which psychopaths stationed overseas lapsed into psychosis was similar to that of a group of Negro soldiers in which the occurrence of psychosis was also high (22). It is to be noted that Negro troops showed an unusually high incidence of psychopathic traits.

Those with psychopathic personalities often developed resentment, anxiety, conversion symptoms, depression, and suicidal preoccupations. In many such cases more severe psychopathologic changes of a psychotic type subsequently were seen. The high incidence of conversion symptoms among this group may be related to the characteristic lack of emotional depth of the psychopath, and his attitude of detachment or *belle* indifference. It is of interest that among adolescents and psychopaths the incidence of traits indicative of lack of maturity, such as temper tantrums, inordinate demand for attention and praise, excessive dependency on others, defective judgment, need for immediate satisfaction without regard to future implications, and failure to assume responsibility, are high, as are hysterical manifestations.

It is also noteworthy that a high percentage of psychopaths with psychosis showed paranoid trends. The egocentric, narcissistic, rigid psychopath becomes frustrated by his inability to obtain special concessions in the Army and easily develops feelings that he is being discriminated against.

SUMMARY

The present study is concerned with a group of 50 psychotic patients with psychopathic personalities, encountered in New Guinea and the Philippines during World War II. The heredity, environmental background, personality development, and psy-

chopathology were investigated. Fifty psychopaths not considered to be psychotic were used as a control group.

Among the 50 patients the family setting was characteristically insecure. Enuresis, nail biting, temper tantrums, and sleep-walking were common. The scholastic performance and school adjustment were poor. The work record was characterized by frequent shifts in jobs, periods of unemployment, and difficulty in getting along with fellow workers and employers. Difficulties in developing and maintaining satisfactory interpersonal relationships were also common. Over two-thirds of the patients had a record of from one to 30 military or civilian arrests. Sexual life was marked by promiscuity and poor marital adjustment. In 6 there was a history of homosexuality. Of the 24 who had been married, 14 were divorced or separated.

In 24 cases there was evidence of a previous neurotic or psychotic illness. Twenty-two were alcoholic. Five were addicted to drugs.

During the psychosis the commonest psychopathological features were excessive motor activity, depression, auditory and visual hallucinations, paranoid delusions, disorganization of thinking, bizarre behavior, and defective judgment. In 22 cases suicidal preoccupations were found. Ten had made suicidal attempts. The dynamic factors and type of reaction were similar to those found in prison psychosis.

CONCLUSIONS

The psychopathic personality appeared to be especially susceptible to the development of psychosis in the combat area of the Southwest Pacific theatre where psychotic reactions among soldiers in general were common. These psychopaths had previously used the latitude of recreational, social, and occupational activities afforded by civilization in the United States, often in an asocial manner, as an outlet for aggressive drives and as a means of escaping from discontent. The lack of such satisfactions, combined with the restrictions and discipline of army life, led to a feeling of being trapped and seemed to be peculiarly favorable to the development of a psychosis.

BIBLIOGRAPHY

1. Dunn, W. H. The psychopath in the armed forces. Review of the literature and comments. *Psychiatry*, 4: 251, May 1941.
2. Baganz, C. N. Psychiatric aspects of delinquency in the Navy. *Dis. Nerv. Syst.*, 4: 82, March 1943.
3. Blackman, N. The psychopathic military prisoner. *War. Med.*, 4: 508, Nov. 1943.
4. Bullard, D. M. Selective Service psychiatry. *Psychiatry*, 4: 231, May 1941.
5. Kaufman, M. R. The problem of the psychopath in the Army. *Proc. 1942 Cong. Am. Prison Assoc.*
6. Diethelm, O. Basic considerations of the concept of psychopathic personality. *Handbook of Correctional Psychology*, Lindner, R. M., and Seliger, R. V. Philosophical Library, Inc., 1947.
7. Greenacre, P. Problems of patient-therapist relationship in the treatment of psychopaths. *Ibid.*
8. Greenacre, P. Conscience in the psychopath. *Am. J. Orthopsych.*, 15: 495, July 1945.
9. Simons, D. J., and Diethelm, O. Electroencephalographic studies of psychopathic personalities. *Arch. Neur. and Psychiat.*, 55: 619, June 1946.
10. Silverman, D. Clinical and electroencephalographic studies on criminal psychopaths. *Arch. Neur. and Psychiat.*, 50: 18, July 1943.
11. Knott, J. R. and Gottlieb, J. S. The electroencephalogram in psychopathic personality. *Psychosom. Med.*, 5: 139, April 1943.
12. Simon, B., O'Leary, J. L., and Ryan, J. J. Cerebral dysrhythmia and psychopathic personalities. *Arch. Neur. and Psychiat.*, 56: 677, Dec. 1946.
13. Levine, M. The dynamic concepts of psychopathic personality. *Ohio St. Med. J.*, 26: 848, August 1940.
14. Karpman, Ben. On the need of separating psychopathy into two distinct clinical types: The symptomatic and the idiopathic. *J. Crim. Pathol.*, 3: 112, July 1941.
15. Partridge, G. E. A study of 50 cases of psychopathic personality. *Am. J. Psychiat.*, 85: 953, May 1928.
16. Cleckly, H. The Mask of Sanity. An attempt to reinterpret the so-called psychopathic personality. St. Louis, C. V. Mosby Co., 1941.
17. Brosin, H. W. The unfit: How to use them. *Psychosom. Med.*, 5: 342, Oct. 1943.
18. Young, H. T. P. Observations on the prison psychoses. *J. Ment. Sci.*, 73: 80, Jan. 1927.
19. Caldwell, J. M., Jr. The constitutional psychopathic state. Studies of soldiers in the U. S. Army. *J. Crim. Psychopath.*, 3: 171, Oct. 1941.
20. Rottersman, W. The guardhouse inmate, with a brief discussion of the "psychopathic personality." *War Med.*, 5: 271, May 1944.
21. Wolf, Stewart, and Ripley, H. S. Reactions among allied prisoners of war subjected to three years of imprisonment and torture by the Japanese. *Am. J. Psychiat.*, 104: 180, Sept. 1947.
22. Ripley, H. S., and Wolf, Stewart. Mental illness among negro troops overseas. *Am. J. Psychiat.*, 104: 499, Jan. 1947.

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23. Bonhoeffer, K. Psychopathologische Erfahrungen und Lehren des Weltkriegs. München. Med. Wochenschr., 11: 1212, August 3, 1934.
24. McPherson, G. E. Neuropsychiatry in Army camps. Am. J. Insan., 76: 35, July 1919.
25. Stier, E. Psychiatrie und Heer. Deutsch. Mil.-arztl. Zeitschr., 1: 15, 1936.
26. Wolter, H. Wehrpsychiatrie. Wien. Klin. Wochenschr., 1: 4, Jan. 6, 1939.
27. von Baeyer, W. R. Über psychopathische Reaktionen Wehrpflichtiger. Veroff. Heeressanwes., 105: 612, 1938.
28. Maier, H. W. Psychiatrie und Armee. Schweiz. med. Wochenschr., 1: 148, Feb. 8, 1936.
29. Nelken, J. Hyjena psychiczna w Wohskn. Roczn. Psychiatr., 22: 77, 1934.
30. Gauthier, M. M. J. Les desequilibres dans l'armee. Hyg. Ment., 23: 238, 1928.
31. Porter, W. C. Psychiatry and the Selective Service. War. Med., 1: 364, May 1941.

THE STERILIZATION OF PSYCHOTIC PATIENTS UNDER STATE LAWS

CLARENCE J. GAMBLE, M. D., MILTON, MASS.

Beginning with Indiana in 1907, various states have passed laws providing for the sterilization of the insane and the mentally deficient until there are now 27 in which such laws are operative.¹ In a previous communication (1) the numbers of operations carried out under these laws were compared, using statistics collected by the Human Betterment Foundation of California and Birthright, Inc. A more recent review (2) makes available the numbers sterilized from the time of passage of the various laws to January 1, 1947. For comparisons between states of various sizes, the operations per 100,000 population for which a psychosis was the indication have been calculated, and are given in Table 1 and Fig. 1. These differ from those in the previous article in that only the operations reported as sterilizations of the insane are here considered.

It will be seen that California has been the most active state, with 141 sterilizations of psychotics per 100,000 since the passage of the law, followed by Kansas and Virginia. In recent years Virginia has taken the lead with 3 sterilizations of such patients per year per 100,000. For the 27 states which have sterilization laws applicable to the insane, the corresponding averages are 39 cases since their passage, and approximately one per year per 100,000 in recent years.

It would be of interest to compare these rates with the numbers of cases for whom sterilization is a needed protection. As no information is available to show what proportion of the first discharges from mental hospitals are in the reproductive age and suffering from psychoses which may be expected to be permanent or frequently recurrent, such a comparison cannot be made with any accuracy. It is, however, possible to ap-

proximate the first discharges with psychosis, since in the long run they are nearly equal to the first admissions with psychosis minus the deaths with psychosis. In 1943, the most

TABLE 1

STERILIZATION OF INSANE PATIENTS CARRIED OUT UNDER THE EUGENIC STERILIZATION LAWS

Total sterilizations to Jan. 1, 1947 per 100,000 population	Sterilizations per year	
	1942-1946 per 100,000 population	1946 per 100,000 population
Cal. 141	Va. 3.0	Va. 3.0
Kan. 116	Cal. 2.8	Cal. 2.4
Va. 102	Kan. 2.3	Kan. 2.0
Del. 97	N. D. .. 1.2	N. H. .. 1.2*
Ore. 59	Iowa ... 1.2	N. D. ... 1.0
N. D. 56	Ore. 1.1	Iowa ... 0.9
N. H. 41	Ga. 0.7	Ga. 0.9*
Conn. 23	N. H. .. 0.7	Miss. ... 0.7*
Miss. 22	Conn. .. 0.6	S. D. ... 0.5*
Utah 15	N. C. ... 0.5	Ind. 0.4*
Iowa 15	Miss. ... 0.4	Ore. 0.4
Ind. 14	S. D. ... 0.3	N. C. ... 0.3
Minn. 13	Ind. 0.3	Mich. ... 0.2*
Okla. 13	Mont. .. 0.1	Utah ... 0.2*
Neb. 11	Mich. ... 0.1	Minn. .. 0.03
N. C. 10	Minn. .. 0.1	
Mich. 6	Del. 0.1	
Ga. 60	Me. 0.05	
Mont. 4	Utah ... 0.03	
Ariz. 4	W. Va. . 0.01	
Vt. 3		
Me. 2		
Ida. 2		
S. D. 2		
W. Va. .. 1		
27 states.. 39	0.9	0.8

* 1946 rate greater than 1942-1946. Populations extrapolated from 1930 and 1940 censuses.

¹ An excellent summary of the law in each state is contained in "Mental Hygiene Laws in Brief" of the National Committee for Mental Hygiene. The provisions of the laws are also reviewed and compared in "Eugenic Sterilization in the United States," by James E. Hughes, Supplement No. 162 to the Public Health Reports obtainable from the United States Government Printing Office.

recent year for which these figures are available (3) there were 85,668 such admissions to state, veterans', county, and city hospitals for the permanent care of psychiatric patients and 41,802 deaths among such patients. The difference, 43,866, indicates the approximate

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number that year. The of psych

STERILIZATIONS PER 100,000 POPULATION



FIG. 1. by state sterilization la

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number of first discharges with psychosis in that year, and equals 32 per 100,000 population. This is more than 10 times the number of psychotics sterilized under the state law in

the desirability of preventing the hereditary transmission of mental disease and deficiency, it has become increasingly realized that instances in which the same type of psychosis is recognized in parent and child are not numerous. Dementia præcox and manic-depressive psychosis are generally considered the psychoses in which evidence of inheritance is most striking. The Committee of the American Neurological Association for the Investigation of Eugenical Sterilization(4), after reviewing the literature in 1936, concluded "that dementia præcox occurs in certain families in a higher incidence than in the general population" and that manic-depressive psychosis "manifests itself in a considerable number of the descendants." More definite is Kallmann(5), who estimates that the probability of schizophrenia in the children of schizophrenics is 19 times that of the general population and that "more than two-thirds of the proband-children, nearly half of the grandchildren, about one-third of the brothers and sisters, and close to a quarter of the half-brothers, half-sisters, great-grandchildren, nephews and nieces must be classified as eugenically undesirable types."

Though the incidence of insanity in the children of a psychotic may not reach a large percentage, the personality disorders which lead to the diagnosis of psychosis in the parent inevitably make for unsatisfactory surroundings for the upbringing of potential children. Even if they are completely separated from the mentally diseased parent, their upbringing can rarely be termed normal or desirable. As no intelligent judge charged with the approval of adoptions would knowingly allow a child to be adopted by a psychotic person, there would seem to be much logic in decreasing the number of births to such persons. Quite apart from considerations of heredity it is probable that such thinking has weight with the state boards of eugenics, supplementing the argument for sterilization based on unsatisfactory genes.

While most of the state laws contain provisions whereby the sterilizations can be performed on a compulsory basis, in practice this is rarely done. The protective program is therefore limited by the difficulties in securing the consent of the patient or his family. This in turn is limited by the lack of public

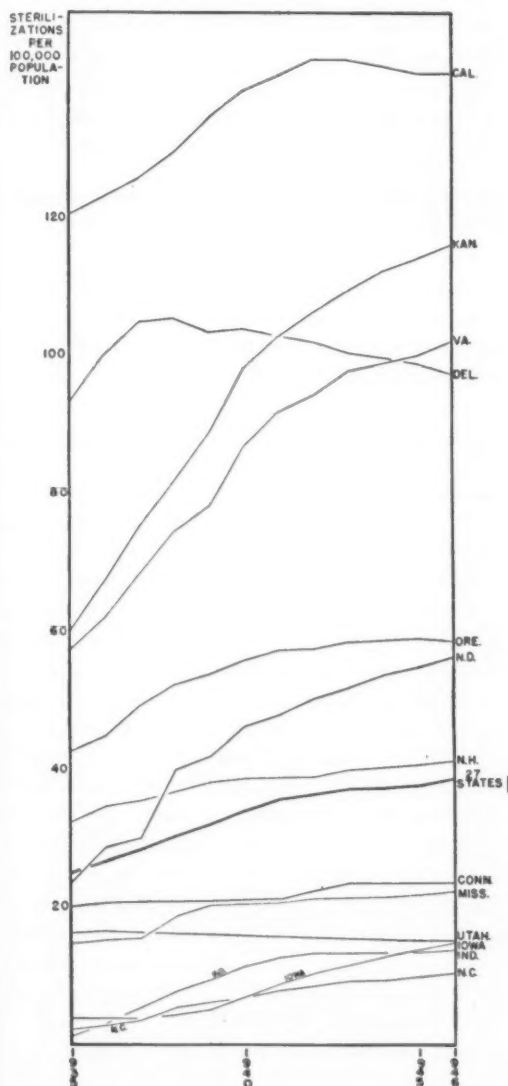


FIG. 1.—Sterilizations of insane persons reported by state institutions since the passage of the sterilization laws. (Cumulative figures.)

The broad line indicates the average values for the 27 states having sterilization laws. The decrease in some of the curves results from a growth of the population which is more rapid than the increase in the total number of sterilizations.

Virginia, the most active state in 1946, and 40 times the average rate in the 27 states having sterilization laws. This suggests that the protection has not been given to a large proportion of those by whom it is needed.

While most of the laws have emphasized

understanding that surgical sterilization removes nothing from the body and involves no change in sexual responses or characteristics. If physicians, to whom this seems so obvious, would educate their patients and the families of their patients to understand this difference between sterilization and castration, and would let them know that the laity's fear of such changes as beards on feminine faces or soprano voices in masculine throats is unfounded, much suffering could be spared to present and future generations.

BIBLIOGRAPHY

1. Gamble, Clarence J. State sterilization programs for the prophylactic control of mental disease and mental deficiency. *Am. J. Psychiat.*, **102**: 239, 1945.
2. Birthright, Inc., Princeton, N. J., Publication No. 5.
3. Patients in Mental Institutions 1943, United States Bureau of the Census, 1946, pages 19 and 28.
4. Committee of the American Neurological Association, Report of. Eugenical Sterilization. Macmillan Company, 1936.
5. Kallmann, F. J., *Genetics of Schizophrenia*. New York, 1938, p. 265.

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PENICILLIN THERAPY IN GENERAL PARESIS¹

GEORGE D. WEICKHARDT, M.D., WASHINGTON, D. C.

The value of penicillin in neurosyphilis is now well established(1). Rose and Solomon (2) regard it as the most effective single therapeutic agent thus far discovered for the treatment of neurosyphilis. It is agreed that the intramuscular method of administration is by far the most satisfactory. Most investigators have employed a total dose of 4 to 10 million units within a period of 10 to 30 days.

In the treatment of paretic neurosyphilis, the problem of combining penicillin with other forms of antiluetic treatment is still unsolved. Eagle(3) has demonstrated that the treponemical effect of penicillin *in vitro* is enhanced by elevation of temperature. Although penicillin and malaria may be given simultaneously, there is some disagreement as to their relative therapeutic value.

A number of investigators(4, 5, 6) believe that results are better when the combined method of treatment is used. O'Leary(7) makes the statement: "When penicillin is combined with malarial therapy or fever therapy, the results are the same as those obtained with malarial therapy or fever therapy alone." O'Leary and Kierland(8) have not observed a frank clinical remission in a paretic patient after administration of penicillin alone. Stokes(9), however, has obtained good results with penicillin alone in general paresis. He believes that penicillin is still outranked by malaria because the follow-up periods are too short.

EXPERIMENTAL

During a period of 31 months (August 1944 to April 1947), 182 patients with general paresis were treated with penicillin. Of these, 20 have died, 10 others have been lost

from our observation, and 152 are now being followed. This report covers 100 patients who have been observed from 6 months to 2 years following the completion of treatment. All patients were legally committed. Only recently admitted patients in whom a diagnosis of uncomplicated paretic neurosyphilis could be established beyond reasonable doubt were included in this series. Patients who had previously received fever therapy were excluded.

TABLE 1

AGE, TYPE OF PSYCHOSIS, DURATION OF PSYCHOTIC SYMPTOMS, AND PREVIOUS CHEMOTHERAPY COMPARED IN THE TWO GROUPS

	Penicillin only	Penicillin and malaria
Age in years at beginning of treatment:		
Youngest in group.....	28 years	22 years
Oldest in group.....	65 years	59 years
Average age	43 years	42 years
Type of psychosis:		
Expansive	10	9
Depressed	1	1
Dementing	42	28
Schizoid	7	2
Duration of psychotic symptoms:		
No exact data.....	23	19
Less than 2 months.....	14	9
2 to 6 months.....	9	7
6 months to 1 year.....	7	2
More than 1 year.....	7	3
Previous chemotherapy:		
No exact data.....	12	4
No previous treatment..	23	19
Previous treatment with As, Bi, or Hg.....	25	17

Each patient received 6 million units of sodium penicillin by intramuscular injection within a period of 30 days. The drug was administered in aqueous solution every 3 hours in doses of 25,000 units. Sixty patients received no other specific treatment. The remaining 40 patients received concurrently a full course of therapeutic quartan malaria (7 to 18 chills). Clinical and serologic examinations were carried out at frequent intervals following the completion of treatment.

Table 1 indicates that the 2 groups are to a great extent similar and comparable. How-

¹ Read at the 103d annual meeting of The American Psychiatric Association, New York, N. Y., May 19-23, 1947.

From the Medical and Surgical Department, St. Elizabeths Hospital, Washington, D. C.

The work described in this paper was done in part under a contract recommended by the Committee on Medical Research of the Office of Scientific Research and Development with St. Elizabeths Hospital, and in part under a grant-in-aid from the Research Grants Division, National Institute of Health, U. S. Public Health Service.

ever, one important difference between the 2 groups is in the length of the follow-up observation period (Table 2). The results here

TABLE 2

NUMBER OF CASES FOLLOWED

Therapy	Length of follow-up in months			
	6	12	18	24
Penicillin only	60	41	34	20
Penicillin and malaria.	40	24	9	2

reported must also be evaluated with due regard to the fact that commercial penicillin has been a changing mixture of various fractions of different therapeutic efficacy.

SEROLOGIC EVALUATION

Changes in the cerebrospinal fluid are quantitative and can be readily represented

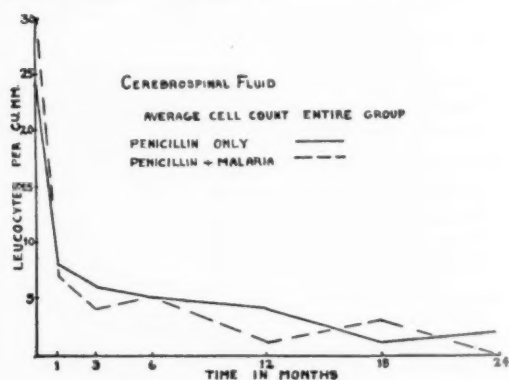


FIG. 1.

in graphic form. Four tests were routinely used, namely, cell count, measurement of total protein content, the Kolmer complement-fixation test, and the Lange colloidal gold reaction.

The cell count shows rapid and dramatic decrease as early as one month following completion of treatment. The average cell count of the spinal fluid is compared in the two groups in Fig. 1. There is no significant difference in the two groups at any time during the 2-year period. The average cell count is well within normal limits after 6 months.

The protein content of the spinal fluid falls more slowly as shown in Fig. 2. Considering 45 mg. percent as the upper normal limit, it is seen that the average protein level does not fall below this point until 12 months in

the combined treatment group and 24 months in the group treated with penicillin only.

The Kolmer reaction before treatment was positive with less than 0.1 cc. of spinal fluid in both groups. Fig. 3 shows the average

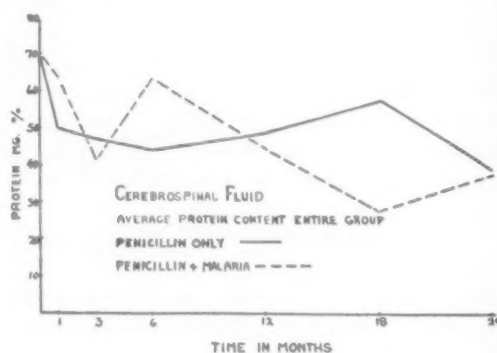


FIG. 2.

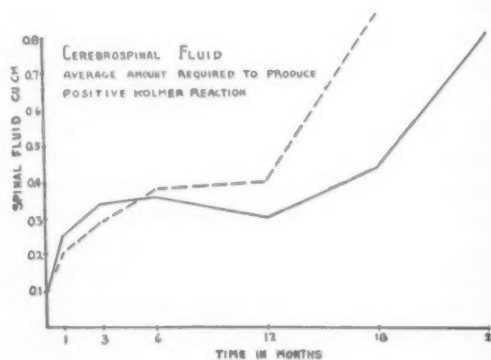


FIG. 3.

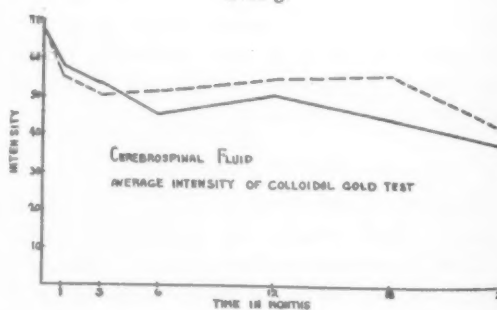


FIG. 4.

amount of spinal fluid required to produce a positive reaction at intervals following treatment. The titre falls slowly in both groups. A maximum of serologic improvement was reached at 24 months.

The variation in intensity of the colloidal gold reaction is shown in Fig. 4. (In constructing the graph only the first 4 tubes are

considered. It has been used to make the fluid in the first tube 1:20, twice the tube to the next multiple of that of the first tube is 75, 4 steady significant

The more direct factors are

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sive seizure complet daily ant The a of patient gain is increase at 24 mo

considered. A single numerical value has been used for each reaction. In order to make this more accurate the amount of spinal fluid in each tube must be considered. The first tube contains 1:10 dilution, the second 1:20, the third 1:40, etc. Since it requires twice the amount of spinal fluid in the second tube to produce the reaction in the first tube, the numerical result in the second tube is multiplied by 2, that of the third tube by 4, that of the fourth by 8. The figure used in the graph is the sum of the four. Thus 5555 is 75, 4321 is 26, etc.) There is a slow but steady decrease in intensity which is not significantly different in the 2 groups.

CLINICAL EVALUATION

The clinical results of treatment are far more difficult to evaluate since so many factors are involved.

Significant improvement in tremor, handwriting, and dysarthria was found in 24 of the patients treated with penicillin only and in 12 of the patients who received combined treatment. One patient developed aphasia and right hemiparesis 5 months after penicillin-malaria. One patient treated with penicillin only developed signs of postero-lateral sclerosis after 6 months. No patient in the entire series has so far developed tabetic changes or signs of optic atrophy. None has become bedridden.

Epileptiform seizures had developed prior to treatment in 8 cases. It is remarkable that none of these patients has had any seizures subsequent to completion of treatment even though none is receiving anticonvulsant drugs. Six other patients have developed grand mal attacks for the first time during or following the treatment period. Of these, 2 had a single seizure shortly after starting treatment and have had no subsequent attacks. These were probably Herxheimer reactions. Four patients reacted with convulsive seizures for the first time after the completion of treatment. They now require daily anticonvulsant medication.

The average body weight in the 2 groups of patients is shown in Table 3. The weight gain is steady and shows a maximum increase at 18 months in the penicillin group, at 24 months in the combined group.

No attempt has been made to evaluate psychiatric improvement except in terms of socio-economic usefulness. For this purpose we have grouped the patients into 3 levels of adjustment as follows:

Level 1. These patients remain hospitalized and lead an entirely parasitic existence, although none is bedridden or unable to walk. Most of these patients dress and feed themselves but contribute nothing to the welfare of others.

Level 2. These patients make satisfactory progress working at simple tasks under supervision. They are distinctly useful hospital citizens. Many have ground parole. Some are permitted to visit with relatives.

TABLE 3

AVERAGE BODY WEIGHT OF ENTIRE GROUP IN KILOGRAMS

Therapy	Time followed in months					
	0	3	6	12	18	24
Penicillin only	61	66	67	69	72	71
Penicillin and malaria..	61	65	68	64	65	70

TABLE 4

CLINICAL RESULTS

	Penicillin only	Penicillin and malaria
Deaths	4 (7%)	2 (5%)
Level 1*.....	28 (47%)	17 (43%)
Level 2.....	11 (18%)	11 (27%)
Level 3.....	17 (28%)	10 (25%)
Total	60	40

* See text for description of levels of adjustment.

Level 3. These are regularly employed outside the hospital or have resumed the responsibilities of housekeeping. On the whole they have been able to return to their former places in society.

Table 4 shows the number of patients at each level at this writing. No remarkable difference in results is seen with the two methods of treatment.

No correlation between clinical and serologic response to treatment was found.

In 6 cases a second course of penicillin injections similar to the first was required at the end of 6 months. This was considered necessary because of failure to reduce protein content and cell count in the spinal fluid to normal limit according to the concept of Dattner and Thomas(10).

Of the 100 patients who have been observed for 6 months following treatment, 94 are alive. One patient died of pyelonephritis, one of pneumonia, a third from coronary thrombosis. A fourth patient committed suicide by inhalation of illuminating gas. In 2 cases death was due to pulmonary tuberculosis.

CONCLUSIONS

1. One hundred patients with paretic neurosyphilis were followed 6 months to 2 years after treatment. No significant difference was found in the results obtained with penicillin alone and with concurrent malaria-penicillin.
2. Penicillin alone in a total dose of 6 million units within 30 days is of definite therapeutic value in paretic neurosyphilis.
3. Nevertheless, until further experience is gained penicillin should be combined with malarial therapy in the treatment of paretic neurosyphilis.
4. If for any reason fever therapy is contraindicated, penicillin alone is the best available method of treatment.

BIBLIOGRAPHY

1. Moore, J. E. Penicillin in Syphilis. Springfield, Charles C. Thomas, 1946.
2. Rose, A. S., and Solomon, H. C. Review of psychiatric progress 1946; neurosyphilis. *Am. J. Psychiat.*, **103**: 524, Jan. 1947.
3. Eagle, H., and Musselman, A. D. The spirochetal action of penicillin in vitro and its temperature coefficient. *J. Exper. Med.*, **80**: 493, Dec. 1944.
4. Reynolds, F. W., Mohr, C. F., and Moore, J. E. Penicillin in the treatment of neurosyphilis, II. Dementia paralytica. *J.A.M.A.*, **131**: 1255, Aug. 17, 1946.
5. O'Leary, P. A., Brunsting, L. A., and Ockuly, O. Penicillin in the treatment of neurosyphilis. *J.A.M.A.*, **130**: 698, Mar. 16, 1946.
6. Rose, A. S., and Solomon, H. C. Penicillin in the treatment of neurosyphilis, a study of one hundred cases followed twelve months or more. *J.A.M.A.*, **133**: 5, Jan. 4, 1947.
7. O'Leary, P. A. Penicillin in the treatment of syphilis. *M. Clin. N. Am.*, **30**: 895, July 1946.
8. O'Leary, P. A., and Kierland, R. R. Today's treatment of syphilis. *J.A.M.A.*, **132**: 430, Oct. 26, 1946.
9. Stokes, J. H., and Steiger, H. P. Penicillin alone in neurosyphilis. *J.A.M.A.*, **131**: 1, May 4, 1946.
10. Dattner, B., and Thomas, E. W. The management of neurosyphilis. *Am. J. Syph., Gonorr. and Ven. Dis.*, **26**: 21, Jan. 1942.

DISCUSSION

J. C. YASKIN, M. D. (Philadelphia, Pa.).—There can be no doubt that Dr. Weickhardt's contribution is of great importance in the therapy of paresis. Any study which enriches our knowledge of paresis is welcome. Dr. Weickhardt's presentation is factual, free from extravagances, and points out clearly that in some cases of paresis penicillin is of considerable value.

The presentation makes it quite clear that in some paretics the efficacy of penicillin compares favorably with the several types of fever therapy and is probably superior to tryparsamide. Penicillin has an advantage in that it can be used with greater safety and with less nursing care, and especially in patients who have visceral and neurologic complications which preclude the use of fever therapies and tryparsamide.

Statistical studies are valuable in determining the efficacy of treatment in any group of cases. We should not forget, however, to think in terms of "paretics," rather than "paresis," especially from the standpoint of neuropathological situations. In a study over a period of years in the neuropathological laboratory of the Philadelphia General Hospital it was established that a great many cases clinically diagnosed as paresis did not at autopsy conform even to the minimal criteria which would justify the pathological diagnosis of dementia paralytica. I therefore sense that patients with paresis with a preponderance of mesodermal reaction will respond more promptly and effectively to penicillin than to the fever therapies. I also feel that patients with predominately parenchymatous changes will react more favorably to the fever therapies, and even more to electrocerebral shock therapy. In a number of recent cases, the combined use of penicillin and malaria was followed by satisfactory serologic improvement but the patients continued to be disturbed or otherwise difficult to manage. These cases were favorably influenced by shock therapy. In one case, the improvement following shock therapy lasted about 6 weeks when the patient lapsed into mutism and required tube feeding, again to improve after shock therapy.

It may therefore be stressed that, while penicillin, at most, answers some of the therapeutic questions in paresis, we should not fall into the grave error of overlooking the many problems it does not solve.

For the present, the use of penicillin in the treatment of paresis may be summarized as follows. It is the ideal agent in asymptomatic paresis. It is practically the only agent in paresis complicated by visceral disease and other conditions contraindicating fever therapies. It is efficacious in cases with predominately mesodermal pathology. In severe cases of paresis it should at the present time, in the interest of the patient, be combined with other forms of therapy.

AUGUSTUS S. ROSE, M. D. (Boston, Mass.).—At the Boston Psychopathic Hospital we have treated approximately 300 neurosyphilitic patients with penicillin and fever therapy between February 1944 and the present time. Approximately 150 of

these patients were followed for approximately 6 months. During this period 10 patients utilized subsequent fever therapy. Since the use of penicillin in neurosyphilis, did not give a total fever. Because of the total fever, we have cases with

these patients have been followed more than one year following treatment. Of this latter number, approximately 100 were diagnosed general paresis. During the past year we have used crystalline penicillin G. In the first year of our investigation we utilized a course of 3 million units of penicillin but subsequently it was raised to 6 million.

Since we were dealing with late cases of neurosyphilis, the majority of which were psychotic, we did not feel that it was safe to give such patients an unknown therapeutic agent alone. Accordingly we gave a great majority of cases malaria but reduced the total amount of malaria to 4 to 6 paroxysms of fever.

Because of this restriction in our investigation we have not accumulated a sufficient number of cases with penicillin treatment alone to make an

adequate comparison within our own clinic. Our over-all results, both clinical and spinal fluid, may be said to correspond quite accurately with those reported by Dr. Weickhardt. Those of us who have been studying the treatment of general paresis with penicillin have been puzzled by the reports in the literature of adequate and satisfactory results with penicillin alone. The question has naturally arisen as to whether these patients with satisfactory clinical and spinal fluid results were similar to those seen in a psychopathic hospital. It is therefore very reassuring to know that Dr. Weickhardt is carrying on a parallel group of experiments, for in the end we will clearly have a satisfactory answer.

May I congratulate Dr. Weickhardt on the very neat and clear manner in which he has presented in graphs his spinal fluid results.

PRESIDENT'S PAGE

Every member of the Association who attended the Washington meeting must have become aware of the major changes going on within the field of psychiatry, and within our Association. Educating ourselves as to the meaning of and responsibilities in the reorganization plan is our first priority for the coming months.

As your president, I shall attempt to give my very best to assist our standing committees in giving leadership to us in their respective areas. To every chairman and to every member of every committee, I have attempted to convey my concept of their job. Because this is of vital concern to every member, it might be well for you to know what I have written them:

CONCEPTION OF FUNCTION OF APA STANDING COMMITTEES

For Chairmen and Members

A. PURPOSE

1. Most, if not all, APA committees must have the responsibility of giving leadership to the entire organization in the area which it represents. With possibly one or two exceptions no committee need be only a "reference committee," i.e., accepting merely tasks assigned to them by the Council. Each committee should accept as its responsibility to develop the potentialities of the area in which they function. This may include surveys, co-ordination of efforts, promulgation of new ideas, initiation of methods, provision of assistance, counsel, new projects and/or establishment of recommended standards and policies.
2. A committee should have a responsibility to the workers and activities in the area of its field of interest, contributing to their guidance and propitious development in every way possible. Secondly, the committee has a major responsibility to the membership of the Association in the

sense of educating the membership, keeping them posted as to major needs and developments, and enlisting their intelligent help in the area of the committee's interest.

B. STRUCTURE

1. Committees should consist of members of the organization capable of making a major contribution to leadership in the area of the committee's activities. This principle supersedes in some degree any special emphasis on geographical representation. This latter is important, but secondary to the necessity of having members who are outstanding in their interest and performance and, therefore, potential contribution, in the area of interest represented by the committee.
2. A committee chairman, as the captain of a team, must give the leadership in providing opportunity for every committee member to function. Distance and expense are handicaps to the holding of meetings of committees which can, in some degree, be supplemented by active communications.
3. Each member of a committee should have a definite assignment and responsibility, and not be merely an adornment or a regional representative.

C. METHODS OF OPERATION

1. Committee meetings are essential for planning and execution of the committee's program. They should not be merely for the development of a report for the Council. Committee chairmen should submit a request to the budget committee for such expense money as it may need to function.
2. Many, many members of the Association are interested and desirous of

contributing to the professional work of the Association. Everyone wishing to do so should, if possible, be given the opportunity. In part, this can be accomplished if each individual committee member acted as a representative of his committee in the local psychiatric society where he lives. Potentially, many of the local and affiliate groups could develop a committee in the same area of interest, with a liaison to the APA committee. By such a method, if discussion groups were held in local societies by the APA committee member, leadership could be given to, and helpful interest created in, that local society in the specific area of the committee's interest. In turn the APA committee member would receive many suggestions and ideas to bring to his committee.

3. It is believed that a closer cooperative relationship could be established with many local psychiatric groups with the assignment to them of specific points for discussion or investigation by any APA committee. In other words, conceivably many of the affiliate and local societies would appreciate an opportunity to contribute,

were they so requested, by any committee of the APA.

4. On the assumption that committees will give leadership, they should regularly have the opportunity and obligation to bring their more important findings and recommendations to the APA membership, and not merely to the Council, where too often they are "accepted and filed," to be printed several months later in small type in the Journal. Conceivably, the most important part of our annual meeting could be the reports of the committees to the entire membership in an open meeting.
5. In addition to reporting to the membership at the annual meeting, it would seem desirable to have an important section of each issue of our official Journal devoted to the activities of our committees and affiliate societies.
6. The affiliate societies, particularly in view of the proposed reorganization plans for the Association, are one of our greatest sources of potential strength. It is possible that this strength might be enlisted through the committees of the Association as outlined above.

WILLIAM C. MENNINGER, M. D.

COMMENT

PSYCHIATRY IN CHINA

In August, 1947, I flew to China as a representative of the World Health Organization of United Nations to spend three months at Nanking helping to set up the National Neuropsychiatric Institute. Most of my time was spent in Nanking, although I did make special trips to Peiping, Shanghai, and Canton to visit their medical schools and psychiatric hospitals.

In general, it can be said that there is very little psychiatry in China at the present time. China, with a population of 450 million as compared with our population of 143 million, has less than 50 well-trained psychiatrists where we have over 5,000, and less than 6,000 beds where we have 600,000. There is, however, a very cordial attitude toward psychiatry on the part of all the medical schools, and even the Chinese Army has now accepted psychiatry as a part of its medical organization. The Surgeon General of the Chinese Army has already sent one medical officer to the United States for a year's training in psychiatry.

The present psychiatric hospitals in China are poorly equipped and in a bad state of repair and are giving largely simple custodial care. Lack of money seems to be the most important reason for this condition and the psychiatric hospitals merely reflect the generally impoverished condition of China. The National Neuropsychiatric Institute at Nanking had no buildings of its own, but was using two quonset huts attached to the National Central Hospital. The director of the institute, Dr. Leslie Cheng, had received training in both United States and Germany as a Rockefeller Fellow and had a staff of eight younger doctors who were greatly interested and excellent material for psychiatric training.

Surprisingly enough, I discovered that Ginling College at Nanking had an excellent school of social work with two of the Chinese staff educated in the United States—one at the New York School of Social Work and the other at the University of Chicago School of Social Work.

Psychology was less in touch with recent developments, but arrangements had been made whereby two well-trained psychologists are now receiving further training in the United States.

Nursing as a profession in China has not ranked as high as in the United States; however, it is developing as a profession in numerous centers and I was interested to find in Nanking that they even had the 40-hour, five-day week for nurses. There were no nurses who had special psychiatric training and this was attempted for the first time at the National Neuropsychiatric Institute.

The teaching of psychiatry in the medical schools is badly handicapped by the fact that there are almost no teachers available. There is great interest in psychiatry and a desire to develop it in every way possible.

It is difficult to estimate the incidence of mental disease in China, but my own observations would make me feel that it is probably as prevalent as in the United States. The idea that the Chinese is a stolid, unemotional individual is not correct. All sorts of emotional problems exist in China and can be seen if one studies psychiatric patients. Problems of sibling rivalry, parent fixation, etc., are found in the children exactly as in the United States. Neurotic preoccupation with sex problems likewise occurs in the same fashion. The extreme veneration for the aged undoubtedly makes growing old much less of a problem emotionally than in the United States. Alcoholism is extremely rare, but opium addiction very common.

At the present time, the chief reliance for the development of psychiatry in China will depend upon the efforts of World Health Organization. At the time this is written, the United States has unfortunately not become a member of this organization. The Chinese medical profession is anxious to develop psychiatry and is eagerly looking to the United States for leadership in this direction. It would seem of the utmost importance that some plan be worked out to give our Chinese colleagues the required assist-

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ance. If World Health Organization is unable or unwilling to do so, a series of fellowships to medical centers in the United States would result in the training of a number of key men who could go back and help establish psychiatry at a desirable level. Any plan for the development of psychiatry in China should be a plan to help the Chinese to help themselves. There is no need of sending a group of experts in psychiatry and allied fields to China to teach the Chinese. It would be desirable if one or two competent psychiatrists could rotate continuously in China, teaching at the National Neuropsychiatric Institute and at some of the key medical schools in such places as Peiping, Shanghai, Canton, and Nanking. This would not take a very large sum of money and the

various medical schools have indicated their desire for assistance of this sort. Then, if for a period of five years one could bring to the United States two psychiatrists, two psychologists, two nurses, and two social workers for a period of one year each, they could return and carry on with the development of psychiatry. It is to be hoped that either the World Health Organization will implement such a program or that from some private sources funds may be secured for such an undertaking. China is looking for help and leadership in the problems of psychiatry. We in the United States are so situated that it should be possible for us to offer it to them.

KARL M. BOWMAN, M. D.

DR. OBERNDORF JOINS THE EDITORIAL BOARD

At the May meeting of the council in Washington, Dr. C. P. Oberndorf was appointed to succeed Dr. Brill on the board of editors. Dr. Oberndorf graciously accepted the appointment and was present at the annual dinner meeting of the board Monday, May 17.

The JOURNAL regards this appointment as a fortunate one. Dr. Oberndorf is a linguist, a teacher of long experience, and a prolific

writer. His very interesting study, "The Psychiatric Novels of Oliver Wendell Holmes" (reviewed in the November 1944 issue of the JOURNAL), will be recalled by the readers of the JOURNAL. As a senior member of the American Psychiatric Association and the American Psychoanalytical Association Dr. Oberndorf's appointment will materially strengthen the editorial staff, and the JOURNAL is happy to record its welcome to him.

NEWS AND NOTES

INTERNATIONAL CONGRESS ON MENTAL HEALTH.—An increasing number of fellows and members of the American Psychiatric Association have indicated their intention to attend the International Congress on Mental Health in London, England, August 11 to 21, 1948. Dr. J. R. Rees, Chairman of the Organizing Committee, attended the annual meeting of the Association in Washington in May and indicated that plans were well advanced for the Congress. It is expected that real values in the field of international mental health will emanate from the Congress. Any members of the Association planning to attend the Congress, and who have not already made reservations, should write to the office of Dr. Frank Fremont-Smith, 1790 Broadway, New York 19, N. Y.

COMMEMORATION OF DR. A. A. BRILL.—Under the auspices of the New York Psychoanalytic Society and Institute and the Association for Psychoanalytic Medicine, a meeting in commemoration of Dr. Brill was held on April 29, 1948, at the New York Academy of Medicine. Dr. George E. Daniels presided, and the speakers were Drs. Nolan D. C. Lewis, Dr. Fritz Wittels, and Dr. C. P. Oberndorf.

AWARDS TO DR. OVERHOLSER AND SAINT ELIZABETHS HOSPITAL.—Rear Admiral C. A. Swanson, Surgeon General, U. S. Navy, has announced citations in recognition of the conspicuous services of Dr. Overholser and Saint Elizabeths Hospital to the Navy during World War II. In his letter to Dr. Overholser accompanying the personal citation, Surgeon General Swanson said:

It is with a great deal of pleasure that I present to you a Certificate of Appreciation awarded by the Civilian Awards Committee for exceptionally outstanding services rendered by you to the Bureau of Medicine and Surgery and to the Medical Department of the Navy as Chairman of the Advisory Committee on Neuropsychiatry during World War II.

By aid of your highly specialized knowledge and professional ability and services voluntarily rendered during this critical period as a member of the

Advisory Committee, and also by virtue of your outstanding position in American Psychiatry, your advice and counsel was of the greatest assistance to the Surgeon General and the Medical Department of the Navy in the handling of neuropsychiatric disabilities and enabled the Medical Department of the Navy to perform better its exacting mission of maintaining the health and caring for the sick and injured of the Naval Service.

Your wholehearted cooperation and invaluable advice and assistance contributed materially to the Bureau's general war efforts, and I concur most heartily in this recognition by the Awards Committee of your meritorious services.

In presenting the award to Saint Elizabeths Hospital, Surgeon General Swanson addressed Dr. Overholser as superintendent as follows:

The Civilian Awards Committee of the Bureau of Medicine and Surgery evaluating the services rendered by civilians and civilian organizations and institutions to the Medical Department of the Navy during World War II has just advised me that a Certificate of Achievement is being awarded to your hospital.

This award is in recognition of the very valuable contribution of your institution to the Navy Medical Department's program for specialized training of large numbers of Navy Medical Officers, Navy Nurses, and Navy Hospital Corpsmen in an endeavor to meet the increasing need for the professional services for such personnel during the critical period of the war.

I am indeed pleased to concur most heartily in this action of the awards committee, and I am forwarding the approved certificate with the sincere thanks of the Bureau of Medicine and Surgery for the fine cooperation and valuable services it received in the furtherance of its war efforts.

GROVES CONFERENCE ON THE FAMILY.—From 21 states and the District of Columbia 68 persons attended the eleventh Groves Conference on Conservation of Marriage and the Family at the University of North Carolina, Chapel Hill, May 10-12. On the third day the Conference moved to Durham, 12 miles away, to meet in affiliation with the seventh session of a similar conference at North Carolina College.

College and university faculty members who teach credit courses in marriage predominated, followed by almost as many who plan to add such a course to their teaching

in a bordering field. Eleven clergymen, one an army chaplain, were interested in getting more background for their marriage counseling and educational work. A number of marriage counselors, high school teachers, medical doctors, including gynecologists and psychiatrists, and a scattering from other professions, ranging from public welfare to social and mental hygiene, made up the rest of the group.

Founded by the late Ernest R. Groves in 1934 to meet the needs of marriage counselors and educators, the Conference has always emphasized the insights to be gained from psychiatry. Three psychiatrists were on the program this year: Drs. Leslie B. Hohman of Duke University, Lena Levine of New York City, and Walter R. Stokes of Washington, D. C.

Attendance at the Conference is by invitation only, to keep the group small enough for genuine conferring, while getting wide geographical and professional distribution. Those who wish to be invited write to the director, Gladys Hoagland Groves, stating their professional connections.

Announcement was made at the Conference that it is now being sponsored by the Marriage and Family Council, Inc., of Chapel Hill, N. C., so that the Conference can carry on its functions throughout the year.

THE GEORGE WASHINGTON UNIVERSITY HOSPITAL.—This new 405-bed general hospital, which was opened in April 1948, has recognized the importance of incorporating full psychiatric services in a general hospital setup. The entire sixth floor of the new hospital, which is Washington's largest private building, is devoted to neurological, neurosurgical, and psychiatric services.

Previously treatment for psychiatric patients in Washington has been available only at Saint Elizabeths Hospital, restricted to Federal patients, and at Gallinger Hospital, the city hospital for indigent patients.

The departments of psychiatry, neurology, and neurological surgery in the new hospital work in close association under direction of members of the faculty of the George Washington University School of Medicine. The department of psychiatry is directed by Dr. Winfred Overholser, professor of psy-

chiatry, and the department of neurology and neurological surgery is directed by Dr. Walter Freeman, professor of neurology, and Dr. James W. Watts, professor of neurological surgery.

SODIUM AMYTAL IN CATATONIC AND DEPRESSIVE STATES.—Professor Jean Delay et al., of the University of Paris, in a study of the action of sodium amytal in catatonic and depressive states (*L'Encephale*, Vol. 37, No. 2, 1948) write: "In these cases [catatonic patients] we are much more impressed with the somatic aspect than the English and American observers have been. The French school is more inclined to regard catatonic states from the somatopsychic viewpoint, the American school from the psychosomatic. This latter view, however, by no means excludes the attempt to determine which are the nervous structures whose modification may play an intermediate role between the psychic and somatic manifestations. The primary psychic effect of sodium amytal appears to be a weakening of the emotional drive as demonstrated especially clearly in anxious depressions. The anxiety first subsides and the mood becomes then slightly euphoric. Pentothal, on the contrary, does not adequately relieve the anxiety. Up to the present, sodium amytal is by far the best pharmacological agent for exploration of the catatonic and depressive syndromes."

BRITISH TRAINING COURSES, INDUSTRIAL PSYCHIATRY.—The National Council for the Rehabilitation of Industrial Workers, of which Lord Horder is chairman, announces international postgraduate courses in social and industrial psychiatry to be given at the Roffey Park Rehabilitation Centre (35 miles from London).

One course is given at the end of June and three others follow: Aug. 9-15, Aug. 23-29, and Sept. 20-26. A distinguished staff of lecturers and instructors conduct these courses, which are open to psychiatrists, industrial physicians, psychologists, and social workers. An inclusive fee of \$50 covers tuition, residence, and social activities. Accommodation is limited to 24 and prompt application is necessary. Address the Secretary, Roffey Park, Horsham, Sussex, England.

BOOK REVIEWS

OPIATE ADDICTION. By *Alfred R. Lindesmith*. (Bloomington, Indiana: Principia Press, 1947.)

In this volume, Alfred R. Lindesmith, associate professor of sociology at Indiana University, advances the thesis that "... addiction to opiates is determined by the individual reaction to the withdrawal symptoms which occur when the drug effects are beginning to wear off, rather than upon positive euphoric effects often attributed to its continued use" (p. 87). How this reaction determines addiction (defined as "... an intense, conscious desire for the drug and by a tendency to relapse" (p. 63)) is most clearly stated on page 123: "Having become accustomed to the drug and having learned to interpret all the vicissitudes of life in terms of withdrawal symptoms, the chronic user continues to identify his difficulties with withdrawal distress even after his supply is cut off. The mitigating dose is still a cure for any and all discomforts." The crucial factor in this process is considered by Prof. Lindesmith to be a linguistic one (p. 166); the opiate user does not become an addict until he learns the name of the drug and the relation of it to both the withdrawal distress and the relief of the latter. This theory, Prof. Lindesmith believes, is able "... to provide a simple, consistent and adequate explanation of all the major phases of the opiate habit" (p. 112). Personality factors are considered only in terms of "normality" and "abnormality" and are then declared to be irrelevant (p. 174). The rôle of pleasure derived in various ways from the use of opiates is mentioned but dismissed as a "tautology" (p. 159). Finally, Prof. Lindesmith proposes that the Harrison Narcotic Law be reinterpreted to render legal the prescription of opiates by physicians for addiction. Addicts would not be forced by law to take treatment but "The Narcotic Farms could be used as hospitals for addicts to administer cures to those seeking to free themselves from the habit" (p. 208). In support of this proposal, Prof. Lindesmith states that "In England, where, as has been indicated, doctors do prescribe for addicts, there is much less addiction than in the United States and there is scarcely any smuggling problem" (p. 205).

It may be stated at the outset that this reviewer agrees that physical dependence (called "habituation" by Prof. Lindesmith) contributes in an important way to the motivation for relapse, not only in the manner described by him but also through the pleasurable effects derived from regular gratification of an artificially induced biological need for opiates, as well as through other mechanisms. However, the selection of this process as "*The Cause*" of opiate addiction appears to be in the nature of *post hoc* reasoning, since there arises immediately the problem of why the future addict takes the drug often and regularly enough to become physically dependent on it. Also, Prof. Lindesmith

stresses the "linguistic" aspect, but again one may reasonably assume that the motivation to ascertain the name of the drug is a consequence of the user's interest in its effects. As far as relapse is concerned, the processes referred to above may determine the attractiveness of the drug to the addict, but they do not explain his lack of resistance to it. These aspects, which are ignored by Prof. Lindesmith's hypothesis, are related to the personality of the addict, not in the sense of "normal" or "abnormal" but in the sense that in some individuals (excluding those with chronic painful conditions) opiates fill an emotional need which is intense enough to require satisfaction in spite of the disastrous effects on interpersonal relationships which addiction exerts. Regarding the latter, Prof. Lindesmith has practically nothing to say, although wherever addiction to opiates is widespread it is considered a very serious problem, even where the stigma of illegality is not present.

In the early part of the book, Prof. Lindesmith goes to great lengths to demonstrate that opiates produce no unusual sensations in those who eventually become addicted, while in the later portions of the book, he contends that even "normal" persons may be attracted by the effects of the drug. Here again, Prof. Lindesmith misses the fact that not only the effects of the drug, but also the relative value placed on the desirability of such effects by the individual, determine addiction. Prof. Lindesmith contends that the pleasures derived from opiates by the addict are only of a "negative" sort—it makes them feel "normal." This reviewer is of the opinion that the distinction between "negative" and "positive" pleasures is unnecessary in explaining the motivations contributing to morphine addiction. Anyone who has actually observed opiate addicts during experimental addiction knows that the user derives great pleasure from satisfying dependence and also seeks, by increasing the dose, to regain those effects of the drug which were experienced before physical dependence was established. These observed facts are, of course, in contrast to the addict's statements, which, even though made in all sincerity, are the result of unconscious rationalizations. It is not clear how Prof. Lindesmith could have expected to obtain other than rationalizations from his method of study which consisted of gathering "... the testimony of 60 or 70 addicts whom he personally interviewed" (p. 6).

With some justice, Prof. Lindesmith attacks theories of addiction based on attempts to correlate such descriptive terms as "normal," "abnormal," "psychopathic," "constitutional inadequacy," etc., with addiction. However, in some cases, his interpretation of the statements of some writers, particularly those of Lawrence Kolb, is rather naive. Furthermore, he appears to have ignored the writings of those who have expressed their ideas on addiction in more dynamic terms. Among these may be men-

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tioned Reichard, who emphasizes the rôle of "tension," however engendered, and the psychoanalytic studies of Rado and Simmel. Perhaps Prof. Lindesmith would have become more aware of such concepts had he acquainted himself more thoroughly with the clinical and research activities of the U. S. Public Health Service Hospital at Lexington, Kentucky, in recent years.

As for Prof. Lindesmith's therapeutic program, one could only wonder how many addicts would "voluntarily" enter a hospital and remain sufficiently long for adequate treatment if they could obtain all the drugs necessary to maintain addiction through legal channels at low cost! England is cited as a desirable example of such a practice, but no facts or figures are given to support this contention. The situation in India, Iran, and China is passed over in discreet silence.

The popular mythologies concerning addicts have long been combated by the U. S. Public Health Service, and the treatment of addiction as a psychiatric (therefore in part, sociologic) problem was undertaken by the establishment of the Narcotic Farms. Although the penologic aspects of present methods of bringing addicts in for treatment are admittedly undesirable, Prof. Lindesmith's alternative offers no practicable solution. Perhaps addiction can be declared a committable psychosis, but would the stigma of "insanity" be any better?

Prof. Lindesmith's book may be of some value in combating moralistic thinking about addicts. However, as a work on opiate addiction it suffers from a lack of understanding of the psychodynamic aspects of the problem as well as of the interdependency of subjective and physiologic processes in the human organism.

ABRAHAM WIKLER, M. D.,
U.S.P.H.S. Hospital,
Lexington, Ky.

CASE STUDIES IN THE PSYCHOPATHOLOGY OF CRIME.
By Ben Karpman, M. D. Volume Two, Second Edition, revised. (Washington, D. C.: Medical Science Press, 1947.)

Of all the fields of psychiatric study, the field of forensic psychiatry is undoubtedly the most chaotic. Psychiatrists make bold claims that they can tell the teacher how to teach, the priest how to cure the soul, and the criminologist how to prevent or cure the social diseases which we call crime. Too often, however, expert evidence has been of such character that the courts have been sceptical of the ability of psychiatry to contribute anything definite to criminology.

What is needed, obviously, is a background of case studies of psychotic criminals such as Karpman is compiling. The volume under review, containing four cases, is one of a series in which a wide variety of offenders have been studied as exhaustively as circumstances permitted. The patients were studied in the department for criminal insane of St. Elizabeths Hospital in Washington, D. C., and include therefore violators of Federal laws as well as typically state and local statutes. Whenever possible,

Karpman has carried on treatment as well as study, with considerable success in some instances (*e.g.*, the case of Kenneth Elton). In others, the patient was removed from the hospital before a satisfactory diagnostic study could be completed. However, in all of them one finds a much more penetrating investigation than is usual in criminal cases.

In addition to the usual official record, Karpman has conducted a modified psychoanalysis and has used questionnaires, records of dreams, letters, and such other personal material as available. He calls attention to the obvious fact that one cannot take the statements of the criminal patient as necessarily true, but that even when he is lying, he casts light on his mental life. The psychiatrist must endeavor to dig beneath the protective shell which the chronic offender has developed in his many bouts with the police interrogator.

That Karpman has developed effective methods this reviewer can testify from personal knowledge. Some of the cases recorded were examined by him as an interne in St. Elizabeths, and the superficiality of the "official records" as compared with Karpman's findings would be amazing to anyone not familiar with Karpman's persistence, patience, and skill in interviewing.

The inherent difficulty in this type of scientific study is that each case is individual. One can neither confirm nor disprove, by repeating the experiment, the explanation why the patient committed his crime, as one could in physics or chemistry. However, if enough case records such as these can be compiled, a pattern may emerge which will make it possible for the psychiatric penologist to classify and treat in groups, and perhaps to take more effective steps toward prevention than are possible at present. At any rate, the present studies illustrate the axiom that criminals, insane or not, become criminals through the interaction of social forces, and not because of any mysterious difference from the rest of us. This fact is not as widely known as it should be. The reviewer has recently read an unpublished Doctorate thesis, in which the results of a questionnaire on the psychopathic personality were analyzed. An amazing paucity of knowledge of the psychopath evidently exists among the legal profession, including the judiciary; and an equally amazing lack of uniformity as to the essential nature of the condition exists among psychiatrists and psychologists. Spade work is obviously needed, and Karpman is supplying it. His book should be in the library of every serious student of crime.

GRANVILLE L. JONES, M. D.,
Superintendent Eastern State Hospital,
Williamsburg, Va.

AN EVALUATION OF NONDIRECTIVE PSYCHOTHERAPY.
By George A. Muench. (Stanford University: Stanford University Press, 1947.)

This is one of a refreshing series of research studies by the students of Carl Rogers. Although the evaluation is concerned with treatment of emotional problems which are considerably more mild

than those usually seen in psychiatric practice, it deserves the close attention of medical psychotherapists. It is encouraging when psychologists attempt to apply their scientific skills to pertinent problems in psychiatry with sufficient grasp of the subject matter to make a meaningful contribution.

Dr. Muench attempted to measure the changes in personality organization of 12 patients through pre- and posttherapeutic testing, utilizing the Rorschach, Kent Rosanoff, and Bell Adjustment Inventory. Statistically significant changes were demonstrated with each of the indices largely in accordance with clinical evidence.

The study's particular value for psychiatry centers around the evidence that brief psychotherapy appears to bring about profound changes in personality, at least on a temporary basis. None of these patients was seen for more than 35 interviews, some for fewer than 10. The most marked changes, according to Rorschach results, were in reduction of anxiety and increase in personal integration (pp. 153-155). Although follow-up studies upon a larger number of patients would be essential to conclusive proof, these results should encourage the trend toward nonanalytic (brief) therapies.

Two additional elements of interest to psychiatry are (1) the frequent *verbatim* notes demonstrating the trend of psychotherapy in a nondirective setting, and (2) the encouraging Rorschach results found for the "less successful" cases. The latter is especially interesting and puzzling to the psychotherapist who has learned from experience that many of his "failures," as measured by interview content alone, still demonstrate significant changes in behavior.

The study is not without limitations. The original number of patients (15) and the group who completed therapy (12) are too small in number to be more than provocative. Evaluation limited to tests without adequate follow-up at a later date through interviews gives no indication of the permanence of therapeutic results. These shortcomings are largely due to the fact that this was a Ph. D. thesis. It is our understanding that Dr. Muench is now completing a follow-up study.

Psychiatry should take heed of this study, not only because it is one of the real contributions of psychology to psychotherapeutic knowledge, but because it is symbolic of the increasing interest and competence of clinical psychologists in a field of endeavor which has been the undisputed domain of psychiatry.

ERIC KENT CLARKE, M. D.,
RAY H. BIXLER, M. A.,
Minnesota Psychiatric Institute.

STUDIES OF THE "FREE" ART EXPRESSION OF BEHAVIOR PROBLEM CHILDREN AND ADOLESCENTS AS A MEANS OF DIAGNOSIS AND THERAPY. By Margaret Naumberg. Nervous and Mental Disease Monograph, No. 71. (New York: Columbia Foundation, 1947.)

This monograph includes six previously published studies which were developed as aspects of a

research project of the Psychiatric Institute and Hospital of New York. The aim of the project was the investigation of the possible use of "free" or spontaneous art expression as an aid in both diagnosis and therapy. The emphasis was on the release of the unconscious into imaginative and spontaneous art projections as a factor in ego development and the planned use of the transference relationship with the art teacher in therapy.

The six studies appeared in psychiatric journals and a volume of child psychiatry. Each study covers one child. There are five boys 5, 9, 10, and 11 years of age and an adolescent girl of 15. They presented various types of neurotic behavior disorders or other neurotic syndromes. Case histories from the hospital are presented. All the children were under observation and treatment in the New York State Institute and Hospital.

There is a careful description of the method of dealing with the child in the art class as well as a description of the evolution of the transference situation and how it is encouraged, handled, and used by the therapist.

Each child is seen in individual art sessions in which a therapeutic relationship is fostered while at the same time the art work is encouraged to progress from routine tracing, through representational depicting of observations to spontaneous or "free" expression of fantasy and unconscious material. The therapeutic value of the technique emerges clearly in these studies, which is not dependent on interpretation so much as on its function as "an image language of the unconscious." The technique is especially useful with children because they are "closer than adults to primitive expression through images and play."

The author discusses the psychodynamics of art as a projection of the inner life of the child and the symbolic meaning of some aspects of abstract form and color. The therapeutic relationship with the teacher or therapist is also discussed, as the child expresses in the images of the art form which he cannot articulate in words and reveals the dynamic mechanisms. In addition to its therapeutic value, spontaneous creative expressions serve as a diagnostic aid for which contributions such as Miss Naumberg's give us more evidence and insight.

The text is well illustrated with the children's drawings. Because of the lack of color reproductions, much of their meaning is lost to any reader who has not seen many such drawings, but the author attempts to fill this gap by the use of descriptive notes.

LAURETTA BENDER, M. D.
New York

HOW OUR MINDS WORK. By C. E. M. Joad. (New York: Philosophical Library, 1947.)

This is a little book about a very large subject. It has, therefore, as we should expect, many of the virtues of a summary but, by the same token, many of the vices of a synopsis. Once again, however, Professor Joad shows his very considerable talent for organizing and condensing sizeable quantities

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of technically complex material and translating it into terms which are accessible to the intelligent layman. He is concerned with the problem of whether mind is simply "an aspect of the body" and thus wholly dependent upon, and determined by, organic processes; or whether it may be shown to be a form of activity in some sense "distinct from the body" and hence possessing its own modes of self-determination. In considering the first possibility, he deals with the attempts of the physicalists to reduce the functions of mind merely to "reflections" of bodily states, and in line with this general approach to the problem he treats of the James-Lange theory of the emotions ("We feel sorry because we cry"), Giart's famous work on instincts as physical reflexes, and the behaviouristic account of will, consciousness, and self in terms of conditioned response. Though Joad himself holds that none of these theories proves adequate, his critical evaluation of them is surprisingly weak. He fails to disclose clearly the logical and empirical poverty of the mechanistic assumptions upon which they are based.

In the second half of the book he moves on to the other possibility, that of mind "as distinct from body," and he advances a number of independent considerations which seem to demand a different kind of approach. This section of his work is by all odds the more satisfactory. He is dealing primarily with the data of mind, and his exposition of theory and analysis of fact are both much surer. Here he considers in some detail the closely related phenomena of purposiveness and memory. His criticism of Semon's engram theory of memory, and of the older image theory, while not new, is in its way decisive. But by far the most illuminating feature of this part of the book (Chap. III) is his discussion of the significance of 'meaning' in relation to the function of mind. This might well have been extended and some reference made to the original work of Ogden and Richards and their many followers in the field of "semiotics." This field is one to which recent psychology has remained largely indifferent. For this indifference there can be little excuse. If psychologists are concerned with the workings of the mind, it behooves them to discover what it is actually capable of doing, and this simply cannot be done without some analysis of the dimensions of meaning it constantly employs. Joad's case for the independence of mind is immeasurably strengthened by his treatment of meaning.

In Chap. IV he seeks to disencumber our thinking of the many confusions for which he holds "faculty psychology" responsible, and in so doing he defends the view that the mind, like an organism, functions as a whole, and that whereas, for example, "reason and instinct may be usefully distinguished for the purposes of classification, to treat them as separate elements, one of which stimulates or employs the other, implies a radically false conception." His concluding chapter on the unconscious has apparently been appended as an afterthought, and while it contains a rather whimsical picture of

Freud's "basement dwellers," the creatures of the id, it contributes little to the central theme of the book.

G. EDISON, Ph. D.,
University of Toronto.

HYPNOTISM TODAY. By *Leslie M. LeCron and Jean Bordeaux*. (New York: Grune and Stratton, 1947.)

This book is written by two consulting psychologists from Los Angeles and has a foreword by Dr. Milton H. Erickson, director of psychiatric research and training, Wayne County General Hospital, Eloise, Michigan. The text is divided into two parts, the first on "Hypnotism and Suggestion" (153 pages) and the second on "Hypnotherapy" (103 pages). The authors state (p. 3), "This volume is offered to satisfy a growing popular demand for up-to-date knowledge of this fascinating science. It is intended also to serve as a text for students, psychologists, psychotherapists and physicians who seek detailed information on the scientific and therapeutic phases."

In Part I, a careful survey of the past history of hypnotism is followed by explicit directions for the induction of hypnosis, with detailed consideration of suggestibility, hypnotic phenomena, and analysis of posthypnotic suggestion, plus a presentation of the major theories of hypnosis. A chapter is also devoted to debunking the relationship between hypnotism and psychic matters.

Part II discusses abnormal psychology and methods of psychotherapy, then proceeds to an analysis of hypnotherapeutic procedures, outlining the particular method followed by the authors. Illustrative case material is included. The book concludes with considerations of hypnotherapy in psychosomatic complaints and a statement of the needs for future research in hypnotism.

Theoretical considerations are largely omitted in the book. This is of practical importance in the section on induction of hypnosis. The low percentage of deep hypnotic inductions which the authors report seems related to this apparent neglect of theoretical considerations. Hypnotists such as Hathaway, Wolberg, Erickson and his pupils, and some earlier workers, have reported higher percentages. This can be attributed in part to the fact that these workers proceeded always with some guiding hypothesis in mind. More important, probably, is the matter of time and patience during the inductive process. It is usually desirable to oversuggest at any stage of the process. Thus, in the authors' otherwise excellent protocol for induction (pp. 37-39), the count of three is much too short for ordinary purposes. This reviewer has found that counting to ten will often "set" a suggestion, but that a count of twenty is far better and much less likely of failure. The use of ideomotor tasks, such as automatic bringing together of the subject's finger and thumb, will serve to ensure full assimilation of suggestions; it will also inform the hypnotist about the degree of success of his suggestions.

The authors' theory of brief hypnoanalysis as presented fails to consider deep dynamic factors.

Thus (pp. 224-225), they accept tentatively the assumption that symptoms can become "habits" merely by repetition, with no apparent awareness of the dominant rôles of motivation and unresolved conflicts. Symptomatic therapy is based on this assumption and its converse, that suggestion will remove (more properly, displace) symptoms when strong enough and repeated enough. This approach can be expected to succeed 20-30% of the time on the basis of suggestion alone, but, for a significant percentage of successes to be achieved, the basic conflicts must be resolved.

It is also evident that the authors employ "supportive" therapy, including palliative medication, on the assumption that subjective relief to the patient will foster recovery (cf. p. 229). This is not in keeping with the most promising approaches to brief therapy, especially that of Meyer and the brief psychotherapy reported upon by the Chicago psychoanalytic group, since it removes the urgency of subjective pressure and external pressure to perform, which serve as means both for enforcing and gauging reintegration and readjustment.

The reader who wishes to know how to hypnotize and how to use hypnotic techniques in psychotherapy will find this an informative and stimulating handbook. It is not a substitute for experience with the technique, and the learner may find some descriptions and analyses confusing until he has encountered many of the situations covered. A minor point is the authors' use of the term "science" in referring to hypnotism. It is, rather, a technique which may be used in scientific investigations or in the art of psychotherapy.

The value of a book of this sort to psychiatrists and clinical psychologists lies primarily in the direction it offers for the use of hypnosis in psychotherapy. As the authors state, hypnosis was used by Freud before he developed his psychoanalytical approach and he recognized that short-term therapy would require a return to hypnotism. They point out that hypnosis can be used in conjunction with any therapeutic approach but have confined themselves to an adapted Freudianism combined with suggestion. There is much yet to be developed in the methods of short-term hypnotherapy, and unfortunately the reader will not find the necessary theoretical preparation here.

JAMES A. CHRISTENSON, JR., PH. D.,
VA Mental Hygiene Clinic,
Tampa, Fla.

THE STORY OF HYPNOTISM. By Robert W. Marks.
(New York: Prentice-Hall, Inc., 1947.)

With the utmost of charming candor, the dust jacket of this book lists the author's manifold qualifications. In the first place, he invented an instrument for making music "tactilely perceptive, to heighten the emotional effect." Later, he arranged exhibits with portable phonographs among rural schools. Subsequently he collected music and musical instruments from Africa and Asia, and so ex-

clusive was his monopoly on this "that he was the only one even interested in the field so . . . he became a free-lance writer." As such he has written "on everything from frozen spermatozoa to movie stars," including music and wine, and he is now writing a book on chess!

Out of this rich background the author has produced this book, entitled "The Story of Hypnotism," which has received the recommendation of the Book of the Month Club, and in which the author has never once sacrificed readability in favor of bore-some facts and scientific accuracy.

As for the content of the book, it is amazing the number of things that can be discussed with 229 pages. The book actually has a universal appeal. If you are historically minded and want to know about the Children's Crusade of 1212 A.D., see page 197. If you are pedantic and want to learn something about personality inventories and mental disease, turn to page 32. Nor will the sensation seeker be disappointed since page 117 tells how terribly afraid of their subjects the hypnotists are! For the reader of diverse interests, there are accounts of John Bunyan's depressed feelings, crooning, flagpole sitting, Coleridge's explanation of how he wrote Kubla Khan, gold fish swallowing, and some highly pertinent comments on Dunninger.

The religiously minded can find discussion of faith cures, witchcraft, legendary accounts of various clerics, the king's touch, spiritism, Christian Science, and the Huguenots.

Nor is the casual reader neglected, since Orson Welles' "Invasion from Mars," the pin-up girl of 1944, an attempted suicide in Pittsburgh, and the use of alcohol in a psychology laboratory during prohibition days are all interestingly mentioned. Naturally, so are Cato, Spengler, and Hitler, Mark Antony's toasting of Cleopatra with pearls dissolved in wine, and a layman's account of how he cured a "hallucinatory headache."

Provision is even made for the statistically minded. Pages 224 and 225 offer the exciting data that there are 245,000 Rotarians and 260,000 Lions in the U. S., and they all sing, "For He's a Jolly Good Fellow."

As for hypnotism, it is mentioned again and again; even whole paragraphs are devoted to the subject, but then, have you ever thought deeply about the amazingly intriguing fact, page 228, that the Eskimos, the Samoans, the Trobrianders, and the natives of Yap have never engaged in aggressive wars deriving from religious beliefs?

In brief, from anyone interested in learning something about hypnotism as a psychological phenomenon, this book can command the full enthusiastic and unanimous acclaim of "incompetent, irrelevant, and immaterial."

The book is an absolute must for every charlatan who recognizes the value of a diverting line of patter.

MILTON H. ERICKSON, M. D.,
Wayne County General Hospital and Infirmary,
Eloise, Mich.

IN MEMORIAM

ABRAHAM ARDEN BRILL, M. D.

1874-1948

One of the best-known and most influential psychiatrists of our generation, Abraham A. Brill, was born in Kanczga, Austria, on October 12, 1874. He died in Mount Sinai Hospital of cardiac thrombosis March 2, 1948.

Dr. Brill came of a substantial family. A grandfather was a rabbi; the father was a commissary officer of the Austrian Army; a brother is a professional musician. Our colleague was the eldest of four, from early years studious, ambitious, and competent. Desirous of accomplishing important things in the world, he left home at fourteen and came alone across the ocean. The parents raised natural objections to having their son leave them at that age but the father supplied passage money and awaited a call to pay for the boy's return trip, but it never came. He gave his son \$30 for incidental expenses, which in those days was an adequate amount, but young Brill, always liberal, was talked out of most of this fund by fellow passengers with hard-luck tales, so he landed with almost nothing in his pocket. He took the first job that he found advertised, errand boy. Not being able to read even street signs in English, he spent two hours on a 30-minute errand, was allowed to seek other work. Life was strenuous at first but on the boat he had made friends with two young Italian musicians and with them he used to play the violin. Soon he made his way, though at first without much comfort, and saved his meagre earnings for further education.

The College of the City of New York furnished courses in the latter part of the day tuition-free, and there the young man spent a year and a half. Later he obtained a bachelor's degree at New York University. Carefully saving his money he entered the College of Physicians and Surgeons. After two years it was necessary to drop out and teach for a period during which he experi-

mented with a professor of psychology on hypnotism. To P. & S. he returned and was graduated in 1903.

By exchanging lessons he had been broadening his knowledge and proficiency. Through schooling or this exchange system he mastered Latin, Greek, Arabic, Spanish, Italian, French, and Esperanto. At home he had learned German and a little Hungarian. He took exchange lessons also in boxing, jiu jitsu, and pool. He tutored children of wealthy families, adding materially to his income. In later years he reminisced about one boy who proved to be a serious conduct problem, but undaunted he had mastered the youth. He danced and rollerskated, but card games had no attraction for him. He never read light stuff but his knowledge of serious literature grew wide and profound. Nevertheless when quoting in his writings he insisted that every phrase be verified. He expected in the autumn of 1903 to go to Boris Sidis in Boston as assistant but Dr. Frederick Peterson got him to take a post at the Central Islip State Hospital. At first he was only a clinical assistant. In the same year the government was taking a census of races and nationalities and Dr. Brill was particularly fitted for this task at Central Islip because of his linguistic scope. He was sent to the Psychiatric Institute twice for courses. He remained altogether for four years, about half the time as pathologist. Meanwhile he became interested in one of his colleagues and with her read widely and discussed all sorts of interesting matters.

Taking a year's leave he went to Europe in 1907. He found little of interest at the Bicetre but learned of Freud's work in Vienna and went to him for a few weeks. Next he was given an assistant's position at Burghoelzli in Zurich under Bleuler, in a group of distinguished psychiatrists. Most of them at the time were young, all ambitious, energetic, and inquisitive. They an-

alyzed each other in frequent conversation, and every morning as a group. Carl Jung was one and his association test was one of the new measures of psychological diagnosis. Abraham and Riklin were there.

In the spring Dr. Brill returned and immediately, in accordance with a promise given him before he went away, he was joined in marriage to Dr. Kitty Rose Owens. For almost forty years they lived and worked together. Mrs. Brill understood well her brilliant husband's needs and devoted herself unstintedly to seeing that his affairs were kept in order, that he had every opportunity to work at the things he loved and did so well, and that his domestic life was healthful, peaceful, and happy. Dr. Brill at once went to work in Vanderbilt Clinic, was chief in 1911 and 1912, and maintained some connection with that institution and the medical school of which it was a part throughout his life. He had already started the translation of two important books (Freud's *Selected Papers* and Jung's *Psychology of Dementia Praecox*) and this task he proceeded to complete. Presently an office was opened. The returns were meagre the first month but soon went up; and during all of his professional life, with Mrs. Brill's competent management, the household was suitably maintained and Dr. Brill was able to attend important congresses and all sorts of medical meetings, and address colleagues, social workers, and other bodies with or without remuneration. To list the addresses he gave, the books he translated, the contributions to literature would take much space, for the titles came near 300. He lectured on abnormal psychology and psychoanalysis at New York University, Postgraduate Medical School, and the College of Physicians and Surgeons (Columbia University).

Dr. Brill was a member of all appropriate psychoanalytic associations and president of the New York and American societies and the New York Psychiatric Society. He held offices in the New York Society for Clinical Psychiatry, The American Psychiatric Asso-

ciation, the American Psychopathological Association, the New York State Hospital Medical Alumni Association. He was a member of the Academy of Medicine, the American Therapeutic Association, the American Association for the Advancement of Science, and the Anthropological Ethnology Society.

He was a pioneer in bringing psychoanalysis to the attention of American physicians and other serious students of psychopathology. Since the Freudian theses and the clumsy translation of German terms that prevailed in the early part of this century roused active antagonism, Dr. Brill and his ideas were often sharply criticized. This he expected and by it he was untroubled. His attacks were bold on what he considered to be entrenched error, nor did he wait to defend his ideas when attack seemed the better strategy. His honesty and fairness saved him from the personal antagonisms that some pioneers of new thought have incurred. He was very liberal not only with his funds but also with his time, and contemporaries and younger physicians did not always realize what heavy contributions he made to their education through his readiness to help them with their professional problems. He also helped a great many people with personal problems; to what extent probably no one outside of his family would ever have been able to tell. After he was well established and famous he did not lose his warm interest in the diffusion of truth nor was he ever unwilling to talk to individuals or groups about the human being, his make-up, his development, his troubles, and his treatment when ill. By any American psychiatrist of the present time and indeed by hundreds in other countries Dr. Brill's memory is held in the most affectionate esteem.

Beside his widow, Dr. Brill left a daughter, Mrs. Philip G. Bernheim, and a son, Dr. Edmund R. Brill, who is a research biologist. There are also two grandchildren, two brothers, and their descendants.

SAMUEL W. HAMILTON, M. D.